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The Influence Of Rural Primary Care Providers Level Of Stigma On Recognition Of Suicidal Ideation In Patients

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THE INFLUENCE OF RURAL PRIMARY CARE PROVIDERS LEVEL OF STIGMA ON RECOGNITION OF SUICIDAL IDEATION IN PATIENTS

by

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This dissertation, submitted by Megan Obert in partial fulfillment of the requirements for the Degree of Doctor of Philosophy from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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PERMISSION

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Megan Lynn Obert
03/19/2017

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ABSTRACT

Although there has been an abundance of research in the last thirty years about primary care providers (PCPs) last contact with patients before they completed suicide, little is known about what may impede a PCPs ability to identify suicidal ideation in patients. The current study investigated implicit and explicit bias toward mental illness compared to physical illness among PCPs and students and how this may affect clinical decision making and identification of suicidal ideation in patients. The participants completed an online survey which assessed implicit stigma, explicit stigma, and clinical decision making in regard to a vignette that depicted a suicidal patient that presented with both physical and mental illness symptoms. The implicit and explicit stigma tasks were not significantly correlated, indicating that self-reported level of mental illness stigma is not a reliable picture of actual bias. A Discriminant Function Analysis revealed the implicit stigma task (IAT) was the best predictor of clinical decision-making in regard to what the participants would further assess for in the patient vignette. Participants with higher levels of implicit mental illness bias were less likely to assess for any mental illness issue in the patient vignette. A Binary Logistic Regression revealed the best predictor for making appropriate recommendations was what the participant chose to assess for in the patient vignette. The study findings are consistent with previous literature that identified implicit stigma as a better predictor of decision making than explicit stigma. Level of implicit mental illness stigma may be one of the many explanations for PCPs missing suicidal ideation in patients. PCPs and students should be encouraged to investigate their level of implicit mental illness stigma and educated on how this may impact their clinical decision making with at risk patients.

CHAPTER I

INTRODUCTION

There has been an abundance of research in the last thirty years about primary care providers (PCPs) last contact with patients before they completed suicide. The research has shown that between 40-87% of patients who completed suicide had met with their PCP in the last three months of their life (Draper, Snowdon &Wyder, 2008; Cho, Kang, Moon, Suh, Kyoung & Kim, 2012; Schulberg, Hyg, Bruce, Lee, Williams & Dietrich, 2004; Isometsa, Heikkinen, Marttunen, Henriksson, Aro & Lonnqvist 1995; Leo, Draper, Snowdon & Kolves, 2013). Although the PCPs may have had contact with a patient in the last months of their life, it is unknown in many of the studies whether the patient was actively suicidal at that time. Nonetheless, this is still an area of potential intervention and therefore deserves attention.

The importance of increasing identification of suicidal ideation in patients is stressed in the literature, and training to help increase identification has shown to be effective in decreasing suicides in the short term (Rihmer, Rutz & Pihlgren, 1995; Schulberg et al., 2004). Despite this potential health effect, research up until this point has not thoroughly studied what may be preventing PCPs from identifying suicidal patients. Possible reasons given in the literature for not identifying suicidal patients include PCPs having little confidence in working with suicidal patients, lack of time spent with patients, insufficient training in mental health issues and fear of prompting suicide by assessing for it (Leo, Draper, Snowdon & Kolves, 2013; Schulberg et al., 2004; Krupinski & Tiller, 2001; Hirschfield & Russell, 1997). No known study has examined the

PCPs level of stigma in relation to recognizing suicidal ideation in their patients. This study examined whether mental illness stigma in rural PCPs and students had an effect on their ability to identify suicidal ideation in a patient vignette and affect their decision making about treatment for a suicidal patient in a vignette.

Suicide in Primary Care

Increasing PCPs knowledge of mental illness as a way to decrease the rate of suicide began with the seminal Gotland study (Rihmer, Rutz & Pihlgren, 1995). In 1983 and 1984 the Swedish Committee for the Prevention and Treatment of Depression conducted an educational program on the diagnosis and treatment of depression for all of the PCPs in Gotland, Sweden in response to the high depression and suicide rate (Rihmer, Rutz & Pihlgren, 1995). After this educational program the frequency of inpatient admissions for depression and rate of suicide decreased significantly (Rihmer, Rutz & Pihlgren, 1995). The PCPs in Gotland were able to identify depression in their patients earlier, which led to less suicide and fewer inpatient admissions. This indicated that PCPs early recognition and decision-making can play a large role in the rate of suicide in an area. Unfortunately, four years after the educational program ended in Gotland, the rates for both suicide and inpatient admissions for depression had gone back to almost what they were before starting the program (Rihmer, Rutz & Pihlgren, 1995). This suggests that even after training there are other variables that may impede PCPs identification of suicidal ideation in patients.

Last Contact Before Suicide. The research on physicians' last contact with patients before their suicide has shown the reason for the last visit is varied. In studies that included both psychiatrists and PCPs, mental illness symptoms were reported as the main reason for the last visit before suicide in between 50-62% of the patients (Isometsa et al., 1995; Draper, Snowdon &

Wyder, 2008). This percentage included patients' last visits before completing suicide with both PCPs and psychiatrists and this likely increased the percentages that were reported. Other reasons for the last visit were for a scheduled follow up, or a physical complaint such as gastrointestinal distress, headaches and migraines, back problems, pain, respiratory symptoms or cardiovascular symptoms (Pan, Lee, Chiang & Liao, 2009; Draper, Snowdon & Wyder, 2008; Cho et al., 2012; Isometsa et al., 1995; Trivedi, 2004).

The percentage of patients who present to primary care settings with physical or somatic symptoms instead of psychological symptoms varies in the research. Snowdon and Wyder (2008) reported 22% of patients who completed suicide reported physical symptoms while other studies reported up to 69% of patients that meet criteria for major depressive disorder present with physical symptoms (Simon et al., 1999). The research shows less than 54% of patients who completed suicide spoke to their PCP about having suicidal thoughts, with some studies citing only 19% (Isometsa et al., 1995; Schulburg et al., 2004). Nearly half of the time patients come to primary care with physical symptoms instead of psychological and do not report having suicidal thoughts. This makes a PCPs task of diagnosing a mental illness or identifying suicidal ideation much more difficult. This also indicates that almost half of the time patients do come in to their last visit and report suicidal thoughts or psychological symptoms. This is concerning, as it suggests there was a limited response to these suicidal thoughts or psychological symptoms by PCPs.

Missing Suicidal Ideation. Few of the articles in the relevant literature address the reasons why PCPs may be missing suicidal ideation in their patients, but the literature does address identification of depression and depressive symptoms. Krupinski and Tiller (2001) reported that 86% of PCPs listed patient's sleep disturbance as a symptom of depression while

only a little over half of the PCPs identified depressed mood as a symptom they use for diagnosis of depression. Of the top five symptoms used to diagnose depression, three were somatic symptoms (Krupinski & Tiller, 2001). PCPs using somatic symptoms to diagnose depression is promising as many patients with depression and patients who eventually completed suicide present to primary care with physical symptoms instead of psychological symptoms (Cho et al., 2012; Draper, Snowden & Wyder, 2008; Isometsa et al., 1995; Pan, Lee, Chiang & Liao, 2009; Schulberg et al., 2004; Trivedi, 2004). Despite this, the study by Krupinski and Tiller (2001) does not reflect what previous literature has reported. Previous literature reported that PCPs were not diagnosing depression based on physical symptoms and were surprised when patients completed suicide who had only reported physical symptoms (Davidsen, 2011).

In a study conducted by Davidsen (2011), PCPs reported they only assessed for suicidal ideation in patients who were diagnosed with depression, and even among those patients with a diagnosis of depression they were not assessing for suicidal ideation regularly. This is disconcerting because research has shown PCPs underestimate the percentage of patients who suffer from depression (Krupinski &Tiller, 2001). If PCPs underestimate the number of patients they have with depression and only assess for suicidal ideation in patients already diagnosed with depression, this may lead to many patients who experience suicidal ideation going unnoticed. Another concern of only assessing patients who have a diagnosis is that the research has shown between 20-70% of patients who completed suicide were diagnosed with a mental illness before their death (Draper, Snowdon & Wyder, 2008; Pan, Lee, Chiang & Liao, 2009). There is a large range difference reported in the studies and this may be due to some of the studies looking at last visits to both psychiatrists and PCPs. Despite this, between 30 and 80% of patients who

completed suicide did not have a diagnosed mental illness at the time of their death (Draper, Snowdon & Wyder, 2008; Pan, Lee, Chiang & Liao, 2009).

An area that is controversial in the research is whether an increased amount of visits to a PCP is indicative of suicidal ideation even if the patient is coming in speaking of other concerns such as physical symptoms (Cho et al., 2012; Deisenhammer, Huber, Kemmler, Weiss & Hinterhuber, 2007; Draper, Snowdon & Wyder, 2008; Schulberg et al., 2004). In one meta-analysis, the researchers stated the pattern of visits to the PCP was not thought to be enough of a warning to alert the practitioner to suicidal ideation in their patient (Schulberg et al., 2004). In contrast, authors of another study reported the number of visits to a health care provider began to increase as the date of the patient's suicide came closer and yet another reported PCPs had multiple contacts in the last month in 35% of their patients who completed suicide (Cho et al., 2012; Draper, Snowdon & Wyder, 2008). In patients older than 60 years of age, switching doctors, or doctor shopping, was shown to increase significantly in the three months prior to their suicide (Deisenhammer et al., 2007). Male patients especially showed an increase in visits to health care providers six months before their suicide, with an average increase of 40% (Deisenhammer et al., 2007). Although some studies state the pattern of visits is not enough, the research shows the number of visits increases and for some patients the number of doctors that they are seeing increases before their death. This information, if more carefully tracked by PCPs, could be another area of intervention with patients.

If PCPs could identify that their patient was increasing their number of visits and showing symptoms of depression, identifying if the patient was experiencing suicidal ideation could be the next step in prevention. In their 2013 study, Morgan et al. reported that 95% of the PCPs in their study could identify depression in a vignette but only 12% correctly identified

suicidal thoughts. Draper et al. (2008) showed that 38% of health care providers did conduct a suicide assessment on their patient prior to their suicide, but did not feel the patient was actually a threat to themselves in any of them. The difference between what the patient may have been trying to convey and what the PCPs believed about their suicidal ideation is troubling. One possible explanation for this difference may be aspects of the PCPs thoughts and attitudes about suicide and mental illness, a factor that was examined in this study.

Of the literature that did speak of PCPs' assessment for suicidal ideation in patients, a meta-analysis by Schulberg et al. (2004) reported physicians feared they would prompt suicide by asking patients about suicidal ideation. They also identified that physicians may rely on the patient to initiate the conversation about suicidal ideation (Schulberg et al., 2004). This practice is especially concerning as only 19-54% of patients who completed suicide informed their providers of their suicidal ideation and plan (Schulberg et al., 2004). Leo, Draper, Snowdon and Kolves (2013) reported other reasons for PCPs not assessing whether patients were experiencing suicidal ideation such as a lack of information about negative life events of the patient, lack of time with patients and insufficient training in mental health issues. In a large study conducted by Krupinski and Tiller (2001) PCPs reported feeling confident in the use of both non-pharmacological and pharmacological treatment of depression but reported feeling less confident in their knowledge and skills to deal with suicidal patients.

All of these identified areas may be a part of the reason that in only 3% of patients who completed suicide did the physician note in their medical records there was a suicide risk (Schulberg et al., 2004). Even though PCPs may feel confident in diagnosing and treating depression they are not adequately identifying suicide risk in patients. The present study focused on PCPs identification of suicidal ideation and what factors may be impeding this identification.

Stigma

The definition of stigma is a sign of discredit or disgrace which sets one person apart from others (Byrne, 2000). Mental illness stigma is a form of this sign of discredit or disgrace which is applied to a person who has or is presumed to have a mental illness. Byrne (2000) noted that mental illness stigma has become synonymous with adverse experiences for a person experiencing the stigma including shame, isolation, discrimination, and blame. As Gullekson put it (in Fink & Tasman, 1992, p.11-12; Byrne, 2000) "For me stigma means fear… Stigma is loss… Stigma is not having access to resources… Stigma is being invisible or being reviled… Stigma is lowered family esteem and intense shame… Stigma is secrecy… Most importantly, stigma is hopelessness, resulting in helplessness."

Stigmatizing Behaviors and Processes. Stigma toward people with mental illness is associated with four types of behaviors and processes (Arvaniti et al. 2009; Corrigan, 2004). These behaviors and processes include cues, prejudice, stereotypes and discrimination (Corrigan, 2004; Stier & Hinshaw, 2007). The public is able to determine that a person has a mental illness by using different cues (Corrigan, 2000). The cues used are deficits in social skills, symptoms of mental illness, labels of mental illness and physical appearance (Corrigan, 2000; Corrigan, 2004).

Stigmatizing attitudes include stereotypes, which are learned beliefs about a social group (Corrigan, 2004; Teachman, Wilson & Komarovskaya, 2006). Stereotypes are efficient because they allow people to quickly produce expectations of an individual due to the stereotyped group they presumably belong to (Corrigan, 2004). There are many stereotypes for people with mental illness, some of which include that they are violent, blame-worthy, a drain on societal resources, unpredictable and incompetent (Arvaniti et al., 2009; Corrigan, 2004).

Many people may be aware of these stereotypes but don't personally agree with them. This is titled perceived stigma, the awareness of stereotypes (Corrigan, Watson & Barr, 2006). The prejudice aspect of stigmatizing attitudes comes from having knowledge about negative stereotypes and agreeing with them (Corrigan, 2004). This agreement with negative stereotypes can result in negative emotional reactions toward people with mental illness (Corrigan, 2004). Prejudice can lead to the last aspect of stigma, discriminatory behavior (Corrigan, 2004). Discriminatory behavior is defined as negative actions against a person or group (Corrigan, 2004). Stier and Hinshaw (2007) added to this that along with these components of stigmatization there is also a frequent attribution of the negative characteristics of a person to his or her group, which contributes to the cycle of rejection.

Public and Self-Stigma. Corrigan and Watson (2002) differentiated the stigma of mental illness into public stigma and self-stigma. Public stigma is the general populations endorsement of prejudice and discriminatory behaviors toward people with a mental illness (Corrigan & Watson, 2002). Self-stigma is when a person with a mental illness internalizes and endorses public stigma and experiences lower self-efficacy and self-esteem (Corrigan & Watson, 2002). The interaction between public stigma and self-stigma can lead to an avoidance of help seeking behaviors by people with a mental illness (Bathje & Pryor, 2011; Corrigan, 2004).

Because of the public stigma surrounding mental illness people may not seek help because they want to avoid being labeled as mentally ill or because of threats to their self-esteem (Bathje & Pryor, 2011; Corrigan, 2004). These perceived threats may be due more to the endorsement and agreement with the negative beliefs about mental illness (self-stigma) (Corrigan, Watson, & Barr, 2006). Bathje and Pryor (2011) reported that participants with high levels of endorsed beliefs about the controllability of mental illness were found to also have

negative attitudes toward help seeking and high self-stigma. A higher level of self-stigma was found to reduce the probability that a person would seek professional help for a mental illness if it was needed (Bathje & Pryor, 2011). Higher levels of endorsement of public stigma of mental illness appeared to lead to higher levels of self-stigma (Bathje & Pryor, 2011).

Structural Stigma. Beyond public stigma and self-stigma exists structural stigma (Corrigan, 2004; Corrigan, Watson, Heyrman et al., 2005; Link & Phelan, 2001). Structural stigma is the political and economic pressures, such as those occurring on a national level, that can lead to discrimination and limit access to care for people with mental illness (Corrigan, 2004; Link & Phelan, 2001). An example of structural stigma in regard to mental illness is that half of the states in the United States restrict the parental custody rights of people with mental illness (Corrigan, 2004). Another example is that around one third of the states in the United States restrict the rights of people with mental illness to be on a jury, vote and hold an elected office (Corrigan, 2004; Corrigan, Watson, Heyrman et al., 2005; Hemmens, Miller, Burton & Milner, 2002). These restrictions do not take into account whether the individual is able or competent to perform these duties or privileges but instead only looks at the label of mental illness and the rights are lost (Corrigan, 2004).

Another form of structural stigma is the historical differences in insurance coverage between physical and mental illness. Mental health treatment was often uncovered, cut short or subject to much higher cost sharing rates by insurance companies prior to the Mental Health Parity Act of 1996 (Barry, Huskamp & Goldman, 2010). This act, however, only addressed lifetime limits that were often enforced on mental health care and did not touch the other inadequacies of insurance coverage of mental health care. Because of this continuing deficit, the Mental Health Parity and Addiction Equity Act (MHPAE Act) was passed in 2008 (Barry et al.,

2010). A statement by Representative Patrick Kennedy, who was one of the main contributors to the creation of the law, summarizes the importance of parity. He stated, "Access to mental health services is one of the most important and most neglected civil rights issues facing the Nation. For too long, persons living with mental disorders have suffered from discriminatory treatment at all levels of society" (Congressional Record, 2007). Despite this progress, the MHPAE Act did not make mental illness and substance abuse benefits mandatory for employers and did not cover the individual insurance market (Barry et al., 2010). The Affordable Care Act also tried to address this with mental health care coverage for both the individual and the employer insurance market. This effort has also hit setbacks with many states opting out of the Medicaid expansion that would have allowed the nearly four million uninsured people with serious mental illness, in serious psychological distress or who have a substance use disorder to become insured (American Mental Health Counselors Association, 2014). Unequal insurance coverage for mental health care is a continued example of structural stigma that exists within the United States today.

Negative Effects of Stigmatization. The stigmatization of people with mental illness has been shown to occur across many different cultures and countries (Stier & Hinshaw, 2007; Tsang, Tam, Chan & Cheung, 2003). In western societies people who have a mental illness are a member of one of the most stigmatized groups of people; as the stigmatization of mental illness is still socially acceptable (Rusch et al., 2010; Stier & Hinshaw, 2007). Even with the increase in knowledge about the etiology of mental illness in western societies (Jorm, Christensen & Griffiths, 2006), stigma still exists toward people with mental illness (Stier & Hinshaw, 2007).

A study conducted by Phelan, Link, Strueve and Pescosolido (2000) examined the differences in public perceptions of mental illness utilizing a question in a study conducted by

Star (1950) and an identical question asked in a study conducted by Davis and Smith (1996). The Phelan et al. (2000) study specifically looked at whether definitions of mental illness had broadened to include diagnoses not associated with psychosis and whether there was a lessening in the fearful images that surround mental illness between the two historical studies. The definition of mental illness did broaden somewhat by 1996 with less participants describing mental illness in terms of psychosis (Phelan et al., 2000). However, the percentage of participants who mentioned mood or anxiety problems as part of their definition of mental illness decreased in the 1996 study and there was also an increase in reference to non-specific social deviance as well as to behaviors and problems that did not fit a diagnostic category (Phelan et al., 2000). There was a significant increase (nearly double) in participants' mentions of dangerousness in their description of mental illness between 1950 and 1996 (Phelan et al., 2000). The results of this study indicate that despite new knowledge about mental illness and a broadened definition of mental illness, people still associate mental illness with dangerousness and in fact this association has increased significantly since 1950 (Phelan et al., 2000).

The negative effects of stigmatization on persons with mental illness have been well documented (Corrigan, 2004; Peris, Teachman & Nosek, 2008; Stier & Hinshaw, 2007). These negative effects include avoidance of seeking treatment, an inability to find a job or suitable housing, lower family and individual functioning, and lower feelings of self-esteem and self-worth (Corrigan, 2004; Peris, Teachman & Nosek, 2008; Stier & Hinshaw, 2007). According to Hinshaw (2007) the negative effects of stigma still exist even after symptoms of mental illness are controlled.

Explicit and Implicit Stigma. Social information, such as the information used to inform stereotypes, stigma, prejudice and discrimination, is processed on both explicit and implicit

levels (Greenwald & Farnham, 2000; Stier & Hinshaw, 2007). The explicit level involves conscious processing that is controlled and reflected on. This explicit level of processing allows people the time to control or alter their responses to stimuli (Bessenoff & Sherman, 2000). The implicit level of processing involves subconscious and automatic processing (Dovidio et al., 1997; Greenwald & Farnham, 2000; Stier & Hinshaw, 2007). The implicit level of processing occurs without control and requires no conscious effort (Bessenoff & Sherman, 2000). Stigmatizing or discriminatory behavior can be based on explicit and controllable attitudes held by a person but it also can be based on implicit and subconscious attitudes that a person acts out without conscious intent (Bessenoff & Sherman, 2000).

Unfortunately, much of the research assessing for mental illness stigma utilizes only explicit measures of stigma, which are self-report measures (Stier & Hinshaw, 2007). This is a problem because these measures involve conscious processing which may lead to socially desirable responding by the participants, where the participants report more neutral or socially acceptable responses (Dovidio et al., 1997; Monteith & Pettit, 2011; Stier & Hinshaw, 2007). Even though expressing stigmatizing attitudes toward people with mental illness is still moderately socially acceptable (Teachman, Wilson, & Komarovskaya, 2006; Rusch et al., 2010; Stier & Hinshaw, 2007), participants may still be motivated to respond in a more tolerant way to show themselves in a positive light.

These explicit measures have been found to correlate poorly with actual stigmatizing behaviors and may not accurately assess the underlying biases that lead to stigmatizing behaviors toward people with mental illness (Dovidio et al., 1997; Stier & Hinshaw, 2007). Stier and Hinshaw (2007) stated that because many of the articles on mental illness stigma use self-report or explicit questionnaires, the field may be significantly underestimating the level of mental

illness stigma in the public. Because of this, utilizing explicit measures alone is insufficient for assessing levels of stigma (Stier & Hinshaw, 2007).

Implicit measures can assess for feelings and attitudes that exist without the participants' conscious knowledge (Stier & Hinshaw, 2007). This means the participants have less control over how they respond to these assessments, which limits socially desirable responding (Stier & Hinshaw, 2007). The most commonly used measure of implicit attitudes is the Implicit Association Task or IAT (Greenwald et al., 2009). The IAT is a computer administered categorization task and assesses the strength of associations between concepts (Greenwald et al., 2009).

In the IAT, two contrasted concepts such as mental illness and physical illness are presented on the computer screen and a participant is first asked to classify items into either mental illness or physical illness as quickly as they can by pressing one of two keys. Then another pair of contrasted concepts such as good and bad are presented on the screen and the participant is again asked to classify items into either good or bad as quickly as they can by pressing one of two keys (Greenwald et al., 2009). Then the tasks are combined with mental illness and good presented on one side of the screen and physical illness and bad presented on the other. Participants are asked to classify items from either of the first two tasks into their category as quickly as they can. This combined task is repeated with the contrasted concepts switched (i.e. mental illness and bad, physical illness and good). The IAT observes the strength of associations between the concepts by measuring the differences in average response times between tasks (Greenwald et al., 2009). For example, a faster response time for the mental illness and bad/physical illness and good task than for the mental illness and good/physical illness and

bad task indicates a stronger association of mental illness with a negative connotation than physical illness with a negative connotation.

Because of the nature of the IAT the results are somewhat resistant if not completely resistant to faking (Greenwald et al., 2009). In one study conducted by Banse, Seise, and Zerbes (2001) participants with negative attitudes toward gay men were instructed to fake positive attitudes on both an explicit and implicit attitude task. The participants were able to fake positive attitudes on the explicit task but were not able to fake positive attitudes on the implicit task (Banse, Seise, & Zerbes, 2001). Participants could slow down their responding to try and sway their responses but the authors indicate that participants are unlikely to spontaneously use this strategy (Greenwald et al., 2009). To guard for this strategy in the current study, participants with slow response times (latencies which exceed 10,000 milliseconds) will be cut from the study using Greenwald, Nosek and Banaji (2003) recommendations, as they are using more of an explicit or controlled strategy to categorize items.

Both implicit and explicit measures of attitudes are correlated imperfectly with actual behaviors toward a stigmatized person or group (Bessenoff & Sherman, 2000; Stier & Hinshaw, 2007). Despite this, these stigmatizing behaviors correlate more strongly with implicit measures of bias than explicit measures of bias (Bessenoff & Sherman, 2000; Stier & Hinshaw, 2007). Negative implicit attitudes against stigmatized groups have been shown to exist even when participants do not consciously endorse these same negative attitudes (Nosek, Banaji, & Greenwald, 2002; Teachman et al., 2003; Teachman, Wilson, & Komarovskaya, 2006).

A meta-analysis of implicit and explicit measures found that the relationship between the two different types of measures was weak (Nosek, Banaji & Greenwald, 2002). It is thought that the two different types of measures are a reflection of different constructs of stigma and can

predict different affective, cognitive and behavioral tendencies (Dovidio, Kawakami & Gaertner, 2002; Greenwald, Poehlman, Uhlmann & Banaji, 2009; Monteith & Pettit, 2011; Rusch et al., 2010). It is thought that explicit measures of stigma are more predictive of types of behaviors that we can control while implicit measures of stigma are more predictive of the types of behaviors that are automatic, such as nonverbal behaviors (Dovidio, Kawakami, Johnson, Johnson & Howard, 1997). Because the two different types of measures are thought to predict different types of behavior, it is important to utilize both implicit and explicit measures to better understand stigmatizing behavior.

Few studies in the current literature have looked at implicit and explicit stigma toward mental illness with physical illness as a comparison. One study conducted by Teachman, Wilson and Komarovskaya (2006), utilized college students, a healthy sample from the population and a sample from the general population with a diagnosed mental illness. The study utilized an implicit measure (IAT) and an explicit measure (Teachman, Wilson & Komarovskaya, 2006). Results of the study showed 58-78% of the participants implicitly associated the concepts of helpless, bad and blame-worthy with mental illness and the participants also showed a relative bias in the explicit measure with negative attitude and helplessness being related to mental illness. The sample from the general population with a diagnosed mental illness did not show a significantly lower implicit or explicit bias toward mental illness which highlights the strength of self-stigma (Teachman, Wilson & Komarovskaya, 2006).

A study conducted by Monteith and Pettit (2011) focused on implicit and explicit attitudes toward depression and physical illness. The study utilized undergraduate students and utilized an IAT to assess implicit attitudes and a semantic differential to assess for explicit attitudes. The participants in this study showed a large effect of implicitly more negative

attitudes toward depression than physical illness (Monteith & Pettit, 2011). This difference was small and insignificant in the explicit negative attitudes measure. Implicit responses also linked depression with being more unstable than physical illness, again there was no significant difference in the explicit measure. In regard to the controllability of depression versus physical illness, explicit responses from participants showed that depression was viewed as more controllable than physical illness although there was no difference between perceived controllability of physical illness versus depression in the implicit measure (Monteith & Pettit, 2011).

In the relevant literature only one study was found that examined implicit and explicit stigma of mental illness compared with physical illness and its effects on patient care. The study, conducted by Peris, Teachman, and Nosek (2008) looked at whether levels of implicit and explicit stigma among PCPs, mental health practitioners, and graduate students had an effect on their clinical decision making. The IAT used to assess mental illness stigma in this study utilized a comparison to another highly stigmatized group, welfare recipients (Peris, Teachman & Nosek, 2008). The results of this study indicated a difference between implicit and explicit bias and clinical decision making behavior (Peris, Teachman & Nosek, 2008). Explicit bias in this study was more predictive of negative prognosis of the patients presented in vignettes while implicit bias was more predictive of over-diagnosis of the patients. The researchers indicated that implicit biases may influence clinical decisions, especially when they are not aware of their bias (Peris, Teachman & Nosek, 2008).

The study by Peris, Teachman, and Nosek (2008) is critical to understanding how implicit bias may impact PCPs ability to identify suicidal ideation in patients. PCPs may not be aware of their implicit bias toward mental illness. By not knowing this they may not understand

the effect it may have on their decision making ability and therefore may not try to control this bias when making decisions. Because of implicit measures limiting socially desirable responding as well as the reported differences in clinical decision making that explicit and implicit stigma measures may predict, it is especially important to include both in the current study. The current study utilized the AQ-27 as the explicit measure and an IAT to assess implicit stigma.

Primary Care Provider Stigma

Previous research indicates that PCPs themselves face stigma when diagnosed with a mental illness (Adams, Lee, Pritchard & White, 2010; White, Shiralkar, Hassan, Galbraith & Callaghan, 2006). One study reported 86.2% of psychiatrists would be reluctant to speak about their mental illness to colleagues (White et al., 2006). The psychiatrists in the study reported their decisions regarding seeking treatment and disclosing their mental illness would be influenced by fears of stigma, confidentiality and career implications (White et al., 2006). It's important to note that this study was conducted with psychiatrists who specialize in working with patients with mental illness and there was still a barrier of stigma within their profession.

In a similar study, 87.1% of the doctors in the sample agreed that physicians would be less likely to appoint another doctor who had a history of depression (Adams, Lee, Pritchard & White, 2010). Female doctors and doctors with a history of depression were more likely to be in the high perceived stigma group (Adams, Lee, Pritchard & White, 2010). The physicians with a history of depression being in the high perceived stigmatization group may indicate that the stigma within the field is more than perceived. This high level of perceived mental illness stigma was reiterated in a study looking at primary care patients (Roeloffs et al., 2003). Sixty-seven percent of primary care patients felt there would be negative consequences on obtaining employment if they spoke about having depression (Roeloffs et al., 2003). Both physicians and

patients reported the belief that mental illness, and in one study specifically depression, would negatively affect them in their careers (Adams, Lee, Pritchard & White, 2010; Roeloffs et al., 2003).

The physicians within the high perceived stigma group in the previously cited study were less likely to report they would seek help from their colleagues or from their own PCPs (Adams, Lee, Pritchard & White, 2010). These physicians were also more likely to report they would not seek any help for their mental illness (Adams, Lee, Pritchard & White, 2010). Over three quarters of the physicians in the study reported they agreed with the statement that physicians believe suffering from depression themselves is a sign of personal weakness. The study found most physicians would look to family and friends for support if they were dealing with mental illness (Adams, Lee, Pritchard & White, 2010). It was found that the higher level of perceived stigma the more likely it was that the doctor would not seek help from formal sources such as their colleagues or PCPs. The study conducted by Adams, Lee, Pritchard and White (2010), looked at both psychiatrists and PCPs and did not find a difference in perceived stigma between the two. A higher level of perceived stigma was linked to seeking less formal support sources (family and friends) by the physicians in this study. The current study explored whether this link between stigma and non-formal help-seeking was upheld when it is the PCPs level of stigma and the decision about help-seeking is in regard to a patient instead of themselves.

Although few studies have examined the attitudes of medical professionals toward other medical professionals with mental illness, the research that is available points to a high level of perceived stigma among medical professionals (Adams, Lee, Pritchard & White, 2010; White et al., 2006). This high level of perceived stigma affects the physicians help-seeking behaviors with many of them reporting they would either not seek help or seek help from informal sources

(Adams, Lee, Pritchard & White, 2010). Adams et al. (2010) stated "It is likely the perception of stigma, or fear of its consequences, adversely affects a doctors' judgment about their own mental health and may delay appropriate help-seeking" (p.360). While it is likely that stigma may affect physicians' judgment about their own mental health and help-seeking it has not been thoroughly explored in the current literature whether level of stigma affects the physicians' judgment about others' mental health and clinical decision making.

Stigma and Patients. If the perception of stigma has an adverse effect on a PCPs judgment about their own mental health, this study proposed it may also have an effect on their judgment of a patient's mental health. If PCPs want to avoid being labeled mentally ill, they may avoid doing the labelling for their patients. PCPs with high perceived stigma were less likely to seek help for their mental illness and believed that suffering from depression themselves was a sign of weakness (Adams, Lee, Pritchard & White, 2010). If PCPs believe suffering from depression was a sign of weakness in themselves, they may believe the same thing about their patients. Thinking that mental illness is a personal deficit, something that is controllable, may lead PCPs to feel that there is nothing they can do to help their patient. If PCPs would not seek help for their own depression or delay seeking help they may be delayed or unable to identify when a patient needs formal help. PCPs are more prone to seeking informal sources of support (physical activity, support from family and friends) for their own mental illness when they actually seek support (Adams, Lee, Pritchard & White, 2010). These informal sources of support potentially could be what they would first turn to if they had a patient with mental illness.

Perceived and Personal Stigma. The previous studies examined mental illness stigma in the medical profession directed toward its members, but few studies have looked at PCPs level of perceived and personal stigma about mental illness in general. One study looked at personal and

perceived stigma of mental illness in PCPs in comparison with psychiatrists, psychologists and the general population (Reavley, Mackinnon, Morgan & Jorm, 2013). Out of the groups of professionals, PCPs had significantly higher scores on both of the personal stigma variables (Reavley, Mackinnon, Morgan & Jorm, 2013). PCPs endorsed statements such as believing they would be weak but not sick if they had a mental illness as well as believing they would be unpredictable and dangerous if they had a mental illness. There was not a significant difference between the professional groups on perceived stigma, although psychiatrists had a higher score on the perceived dangerous/unpredictable scale which may be due to the more severe nature of the patient population they serve (Reavley, Mackinnon, Morgan & Jorm, 2013).

The PCPs and psychiatrists in the study had a significantly higher score on the social distance scale than psychologists (Reavley, Mackinnon, Morgan & Jorm, 2013). The general community participants in the study showed significantly higher personal stigma but there was no significant difference between PCPs and the public on perceived stigma or on social distance (Reavley, Mackinnon, Morgan & Jorm, 2013). This study indicates that despite PCPs education and experience they hold more personal stigmatizing beliefs about mental illness than other health professionals. PCPs also do not significantly differ from the public on perceived stigma and wanting social distance from someone who is mentally ill.

In a study conducted with medical students, the Medical Condition Regard Scale (MCRS) was used to look at stigma toward mental illnesses (Korszun, Dinos, Ahed & Bhui, 2012). The results of the study showed the patient condition that had the highest level of disregard was one that had unexplained abdominal complaints. This is important as the research shows that patients who complete suicide sometimes present to their PCPs with somatic complaints that may or may not be explainable by another diagnosis (Cho et al., 2012; Draper,

Snowdon & Wyder, 2008; Pan, Lee, Chiang & Liao, 2009). Both depression and anxiety were given a lower regard by the medical students than other illnesses presented in the vignettes (Korszun, Dinos, Ahed & Bhui, 2012).

Stigma of Suicide. Recent research has looked specifically at the stigma of suicide as well as the literacy of suicide within the medical field (Chan, Batterham, Christensen & Galletly, 2014). Literacy of suicide refers to the knowledge of the signs and symptoms, causes, risk factors, treatment and prevention of suicide (Chan et al., 2014). Chan et al. (2014) had medical students at differing levels in their education take the Stigma of Suicide Scale as well as the Literacy of Suicide Scale and then compared them to the general population of students. When looking at literacy of suicide there was a significant difference between medical students who were farther along in their training compared to students who were just beginning or were in the general university sample of students (Chan, Batterham, Christensen & Galletly, 2014). This suggests that medical students are gaining information about suicide as they progress through their training and are exposed to suicidal patients. Despite gaining knowledge about suicide, medical students across all samples performed the poorest on the recognition of suicidal symptoms section of the Literacy of Suicide Scale (Chan, Batterham, Christensen & Galletly, 2014).

There was no significant difference between the medical students and the general student population in regard to the stigma related to suicide (Chan, Battherham, Christensen & Galletly, 2014). Although there was no significant difference, differences were seen in medical students who were further along in their training and had been exposed to suicidal patients through clinical rotations. These students showed slightly less stigmatizing attitudes than other students who had not yet had experience with that population. The medical students in the study had

difficulty recognizing risk factors associated with suicidal behavior or signs of distress (Chan, Batterham, Christensen & Galletly, 2014). This corresponds with previous research where only 12% of PCPs identified suicidal ideation in a vignette depicting a patient with depression and suicidal thoughts (Morgan, Jorm & Reavley, 2013). While it seems that medical students are gaining literacy about suicide as they progress through their training, their level of stigma toward suicide does not significantly differ compared to the general population of college students. Experience with suicidal populations does appear to have some effect on lowering the stigma of suicide but this effect still does not appear strong enough.

Overall, the literature suggests PCPs have a high level of perceived stigma within their profession and high levels of personal stigma regarding mental illness (Adams, Lee, Pritchard & White, 2010; White et al., 2006; Reavley, Mackinnon, Morgan & Jorm, 2013). PCPs as well as medical students do not differ significantly from the general population in regard to endorsement of suicide stigma and perceived mental illness stigma (Chan, Batterham, Christensen & Galletly, 2014; Reavley, Mackinnon, Morgan & Jorm, 2013). It is unknown what effect high levels of stigma in PCPs may have upon recognizing suicidal ideation in patients and decision making in regard to treatment for suicidal ideation. This is especially distressing when thinking of PCPs who are working in rural areas. These practitioners may not have access to mental health professionals as referral sources and may have to treat mental illness related problems in their patients on their own.

Rural Populations

Despite previous research that has stated mental illness is more common in urban areas (Galea et al., 2011; Lederbogen et al., 2011), a recent study conducted by Breslau, Marshall, Pincus and Brown (2014) reported finding no difference between rural and metropolitan areas in

depression and severe mental illness in youth and adults. Although there is not a difference in levels of depression and severe mental illness in rural versus urban areas (Breslau, Marshall, Pincus & Brown, 2014), there is a difference in suicide rates between these areas with rural residents completing suicide at a higher rate than urban residents (Hirsch & Cukrowicz, 2014; Jones, Cook & Wang, 2011; Searles, Valley, Hedegaard & Betz, 2014).

Hirsch and Cukrowicz (2014) conducted a review of the literature on suicide in rural areas and reported that both males and females in the United States' ten least populated states (such as Wyoming, North Dakota, Alaska and Montana) committed suicide at a higher rate than males and females living in the ten most densely populated states (such as Florida, Georgia, Texas and New York). This pattern of higher rates of suicide in rural areas is upheld in almost all countries that have reported data related to suicide (Hirsch & Cukrowicz, 2014; Searles, Valley, Hedegaard & Betz, 2014). Racial, ethnic and sexual minorities as well as Veterans are at a higher risk for suicide when they reside in rural areas (Hirsch & Cukrowicz, 2014).

A study conducted by Searles, Valley, Hedegaard and Betz (2014) showed rural residents in the United States who completed suicide were less likely to have received mental health care, less likely to have previously attempted suicide and were less likely to have a psychiatric diagnosis at the time of their death than urban residents. This may be due to the significant difference in availability of mental health professionals to assist those in need in these areas. There is a lack of access to mental health professionals in rural areas with 60% of the mental health care professional shortage areas residing in rural parts of the country (United States Department of Health and Human Services, 2011). Partially because of this, many people who live in rural areas seek help for mental health issues from their PCP, clergy or family and friends

(Andren et al., 2013; Hirsch & Cukrowicz, 2014; Komiti, Judd & Jackson, 2006; Robinson et al., 2012).

Beyond lack of access many rural residents report other barriers to help-seeking. An often cited barrier to help seeking in rural areas is the reported high levels of perceived stigma of mental illness (Andren et al., 2013; Hirsch & Cukrowicz, 2014; Komiti, Judd & Jackson, 2006; Robinson et al., 2012). This high level of perceived stigma can lead to rural residents waiting to seek help for mental illness until they are at a higher level of distress or lead to them not seeking help at all (Andren et al., 2013; Komiti, Judd & Jackson, 2006). In a study conducted by Robinson et al. (2012) rural participants reported they felt struggling with mental health issues was seen as weak within their communities which confirms previous studies findings (Komiti, Judd & Jackson, 2006). A high portion of participants in the study reported experiencing feelings of shame that came from the stigma associated with mental illness (Robinson et al., 2012). This stigma was often linked to a reluctance to seek help in the rural participants. The participants spoke of many barriers to seeking help from mental health providers. These barriers included having to travel long distances to see a provider, the cost of the visit, and the cost of taking time off work to travel to the appointment (Robinson et al., 2012).

Rural residents in the Robinson et al. (2012) study commended the medical providers in their area for doing their best and providing medical care. But these residents also spoke of concerns about whether their PCPs lacked the experience that was needed to treat mental health issues. Some participants expressed concerns that their PCPs prescribed treatments without consulting with specialists or failed to recognize or diagnose mental health problems correctly (Robinson et al., 2012). Other participants reported they felt the health care providers in their area were too aggressive with treatment and often required hospitalization when there wasn't a

risk (Robinson et al., 2012). The participants in the study felt that more education around mental illness was needed at every level of their communities, including the medical providers (Robinson et al., 2012).

The beliefs and values of rural residents may also be a barrier to help-seeking. Rural residents have highly endorsed beliefs such as feeling people should work on their problems alone as well as believing it is admirable to cope with problems on your own (Komiti, Judd & Jackson, 2006; Andren et al., 2013). Judd et al. (2006) found that rural participants who reported higher levels of stoicism were less likely to seek help for mental health problems than other residents. Hirsch and Cukrowicz (2014) identified honor-based, male-dominant, individualistic perspectives of rural residents as factors contributing to the higher rate of suicide in these areas. Because of these beliefs and values as well as high levels of stigma, lack of anonymity in help-seeking has also been identified as a barrier (Komiti, Judd & Jackson, 2006; Jones, Cook & Wang, 2011).

In summary, rural residents experience mental illness at a similar rate to their urban counterparts but complete suicide at a much higher rate (Hirsch & Cukrowicz, 2014; Breslau, Marshall, Pincus & Brown, 2014). These residents also often lack the mental health care resources that their urban counterparts have. Because of this lack of access, rural residents often seek help for mental health issues from PCPs, clergy or family and friends (Andren et al., 2013; Komiti, Judd & Jackson, 2006; Robinson et al., 2012). Beyond the barrier of access, stigma as well as rural beliefs and attitudes have been linked to a decrease in help-seeking behaviors for mental illness (Komiti, Judd & Jackson, 2006; Robinson et al., 2012). Although the attitudes, beliefs and stigma of rural residents may complicate a PCPs job when trying to diagnose mental illness and identify suicidal ideation these PCPs are often the first responders to these patients.

The high level of suicide in rural areas makes early intervention and identification of mental illness and suicidal ideation a priority.

Study Purpose

Though there are many articles in the relevant literature that speak of PCPs last contact with patients before suicide, it is not clear if the patient was actually experiencing suicidal ideation at that last contact. Despite this it is important, especially in rural areas, to examine if there was a point in visits where intervention could have happened for a patient who was contemplating suicide. Even though the high level of perceived and personal stigma within rural populations may serve to complicate the presentation of mental illness, little is known about the effect of rural PCPs stigma on patient care.

PCPs may be more inclined than most participants to respond in a socially desirable manner, especially when concerning stigmatizing attitudes, and because of this an implicit as well as an explicit measure of stigma will be utilized. Both explicit and implicit stigma have been shown to affect clinical decision making in different ways and this is another reason the current study will utilize both measures. Rural residents and physicians are more likely to seek informal sources of support for mental illness, especially if they endorse a high level of stigma. The rural PCPs (MD, NP, PA) and students (NP, PA, MD students) in this study work in rural areas or in predominately rural states and may not be separate from the beliefs, values and culture of these areas. The aim of the study was to examine whether the level of stigma in rural PCPs and students had an effect on their recognition and assessment of suicidal ideation and on their decision making process about interventions for a patient with suicidal ideation presented in an online vignette.

This study examined three hypotheses. The first hypothesis is that scores on the implicit stigma task (IAT) and explicit stigma task (AQ-27) will not be significantly correlated. The second hypothesis is that scores on implicit and explicit stigma tasks as well as self-reported likelihood of assessing for suicide in different scenarios will predict what the students and PCPs assess for after reading a patient vignette. The last hypothesis is that scores on implicit and explicit stigma tasks as well as what the participants assessed for in the vignette will predict whether the students and PCPs recommend formal mental health recommendations (psychopharmacological intervention or referral to a mental health provider).

CHAPTER II

METHOD

Participants

Participants who met the study criteria (PCP or student, working in rural area at least half the time) included 48 females and 12 males. Of the participants 22 were between the ages of 20-29 years (36.7%), 16 were between the ages of 40-49 (26.7%), 15 were between the ages of 30-39 (25%), four participants were between the ages of 50-59 (6.7%) and two participants were older than 60 (3.3%). The majority of the participants self-identified as White (*n*=53, 88.3%), with a smaller proportion identifying as Asian (*n*=5, 8.3%) and Hispanic (*n*=2, 3.3%). The largest proportion of participants were nurse practitioner students (*n*=29, 48.3%) followed by physician assistant students (*n*=10, 16.7%), physician assistants (*n*=7, 11.7%), nurse practitioners (*n*=7, 11.7%), medical doctors (*n*=6, 10%), and one medical student (*n*=1, 1.7%). Twenty-six participants had been in practice from 1-5 years (43.3%), five for 11-19 years (8.3%), four for 6-10 years (6.7%), three for over 20 years (5%) and students who noted this question was not applicable as they were still in school (n=22, 36.7%). The majority of participants worked in a rural setting with a population under 3,000 (*n*=45, 75%), with a smaller proportion working in a setting with a population over 3,000 but in a self-identified rural area (*n*=12, 20%) and three participants who did not answer (5%).

Participants reported practicing in eighteen different states including; Montana (*n*=11, 18.3%), Washington (*n*=7, 11.7%), Georgia (*n*=7, 11.7%), Idaho (*n*=7, 11.7%), Wyoming (*n*=4,

6.7%), Oregon (*n*=4, 6.7%), North Dakota (*n*=4, 6.7%), South Dakota (*n*=3, 5%), Minnesota (*n*=2, 3.3%), Nebraska (*n*=2, 3.3%) and one participant each from Texas, Arizona, Colorado, Oklahoma, New Jersey, Maine, Michigan and California (*n*=1, 1.7%) as well as one participant. from British Columbia (*n*=1, 1.7%). Complete demographic information including sex, age, race, licensure, population, state of practice, and time in practice is presented in Table 1. At the completion of the study, participants had the option of entering a raffle to win a $200 Amazon gift card.

Table 1

Demographics of Sample

Sample Descriptive	*n*	%
Sex		
Female	48	80
Male	12	20
Age		
20-29 years	22	36.7
30-39 years	15	25
40-49 years	16	26.7
50-59 years	4	6.7
60 and older	2	3.3
Did Not Say	1	1.7
Race		
White	53	88.3
Asian	5	8.3
Hispanic	2	3.3
Licensure		
M.D.	6	10
P.A.	7	11.7
N.P.	7	11.7

Table 1 Cont.

Demographics of Sample

Sample Descriptive	*n*	%
Licensure		
M.D. Student	1	1.7
P.A. Student	10	16.7
N.P. Student	29	48.3
Population of Place of Practice		
Population under 3,000	45	75
Population over 3,000	12	20
Did Not Say	3	5
State of Practice		
Montana	11	18.3
Idaho	7	11.7
Georgia	7	11.7
Washington	7	11.7
North Dakota	4	6.7
Oregon	4	6.7
Wyoming	4	6.7
South Dakota	3	5
Minnesota	2	3.3
Nebraska	2	3.3
Texas	1	1.7
Arizona	1	1.7
Colorado	1	1.7
Oklahoma	1	1.7
New Jersey	1	1.7
Maine	1	1.7
Michigan	1	1.7
California	1	1.7
British Columbia	1	1.7

Table 1 Cont.

Demographics of Sample		
Sample Descriptive	*n*	%
Time in Practice		
1-5 years	26	36.7
6-10 years	4	6.7
11-19 years	5	8.3
20 plus years	3	5
N/A Student	22	36.7

Measures

Demographics. A short demographics questionnaire was given to participants after they had given consent to participate in the study. The demographics questionnaire asked for age, sex, race, type of licensure, time in practice and the estimated population of the area they currently practice or train in.

Implicit Stigma Measure (IAT). To assess for the level of implicit mental illness stigma the participants were given an Implicit Association Task (IAT). The Implicit Association Task was used to assess automatic associations to physical and mental illness. The IAT has been widely utilized in bias research and has adequate psychometric properties (Greenwald & Nosek, 2001; Teachman, Wilson & Komarovskaya, 2006). The IAT utilizes paired concepts and two stimulus groups with the outcome measure being reaction time (Greenwald & Banaji, 1995; Teachman, Wilson, & Komarovskaya, 2006; Stier & Hinshaw, 2007). In the IAT the participant is asked to classify words into stimulus groups and concept pairs as quickly as they can (Greenwald & Banaji, 1995).

For this study, the IAT paired concepts and stimulus groups were adapted from the work of Teachman, Wilson, and Komarovskaya (2006) and Monteith and Pettit (2011). The two

stimulus groups in this study are mental illnesses (Depression, ADHD, Generalized Anxiety Disorder) and physical illnesses (Diabetes, Heart Disease, Asthma). The mental illnesses were chosen due to how frequently they may be seen in a PCPs office and ease of understanding of these illnesses. Severe mental illnesses were intentionally left out so as not to overly influence the results. The physical illnesses were chosen due to how frequently they may be seen in a primary care provider's office and due to the possibility of either biological or behavioral determinants of these illnesses. The intent of this was to not use purely biological illness (i.e. Cerebral Palsy, Parkinson's), because this may also sway the results of the IAT. The concept pairs used in the IAT are good/bad, blameworthy/innocent, dangerous/harmless, and competent/helpless (Teachman, Wilson, & Komarovskaya, 2006).

As an example, the stimulus group of mental illness and the concept of blameworthy were paired at the top right of the computer screen while physical illness and innocent would be paired at the top left. Participants were instructed to classify words that belong to either blameworthy or mental illness on the right and any words that belong to either innocent or physical illness on the left. After this trial was completed the labels were switched and mental illness and innocent would be on the right while physical illness and blameworthy would be on the left. The dependent variable is the speed of classification of words across the trials. When stimulus groups and concepts are paired in a way that match the participants' implicit associations they will have shorter reaction times (Greenwald & Banaji, 1995). It was hypothesized that participants would be quicker to pair negative concepts (bad, dangerous, etc.) with mental illness than physical illness.

Explicit Stigma Measure (AQ-27). To assess for explicit stigma, the 27-item Attribution Questionnaire (AQ-27) was used. The AQ-27 measures endorsement of affective, cognitive and

behavioral tendencies of stigma through the rating of a vignette describing an individual with schizophrenia (Corrigan et al., 2003). Responses to the vignette were rated on a 9-point Likert scale with 1=not at all or not likely, and 9=very likely or very much. The AQ-27 assesses endorsement of mental health stigma on nine factors. The factors include blame, anger, pity, help, dangerousness, fear, avoidance, segregation and coercion (Corrigan, Watson, Warpinski & Garcia, 2004). The previous 21 item version of the AQ showed an internal consistency of the subscales between .70 and .96 (Corrigan et al., 2003). The AQ-27 has been found to be valid and has a one week, test-retest reliability of (r>.75) for six of the nine factors (Brown, 2008; Corrigan et al., 2004). The AQ-27 was used as it assesses desire for social distance as well as attitudes toward coercion and segregation that are not accounted for by the IAT. The Chronbach's alpha for the current sample was .87 indicating a high level of internal consistency for the sample.

Medical Condition Regard Scale (MCRS). The Medical Condition Regard Scale (MCRS) looks at whether medical professionals find a patient with a medical condition to be enjoyable, worthy of medical resources and treatable (Christison, Haviland & Riggs, 2002). Participants rated their level of agreement with questions on a 6-point Likert scale with 1= strongly disagree and 6= strongly agree. Questions cover topics such as whether patients with a certain condition irritate the practitioner, are satisfying to work with or if a patient with that condition is difficult to work with (Christison, Haviland & Riggs, 2002). This scale was used as a distractor scale for the purposes of this study. The MCRS was found to be valid and reliable with a test-retest reliability of .84 and a coefficient alpha of .87 (Christison, Haviland & Riggs, 2002).

Clinical Decision Making Vignette. The vignette includes a patient who presents for an appointment with a mix of physical as well as mental illness symptoms. The physical illness symptoms include gastrointestinal distress, while the mental illness symptoms include hopelessness, decreased enjoyment in activities, decreased motivation and suicidal ideation. In the vignette there are also symptoms that could be either due to physical or mental illness which include; lack of energy, difficulty falling and staying asleep, decrease in appetite and feelings of fatigue. The mix of physical as well as mental illness symptoms was done purposefully as it seems that many patients in their last contacts with practitioners before completion of suicide did not explicitly address suicidal ideation and instead focused on physical symptoms (Cho et al., 2012; Draper, Snowdon & Wyder, 2008; Isometsa et al., 1995; Pan, Lee, Chiang & Liao, 2009; Trivedi, 2004). The participants were instructed to read the vignette and identify what diagnosis they would give the patient, what they would assess for with this patient and what recommendations, referrals, or medications they would recommend for the patient if all resources were available to them.

Likelihood to Assess for Suicidal Ideation. This scale was used to explore the self-reported likelihood the participants would assess for suicidal ideation in scenarios and symptoms commonly associated with suicide on a five point Likert scale. Symptoms and experiences included lack of improvement or worsening of symptoms, onset of physical illness, lack of social support, chronic pain, frequent thoughts of death or dying, hopelessness, increased alcohol or drug use, withdrawal, agitation, and acting impulsively (American Psychiatric Association, 2003; Furlanetto & Stefanello, 2011; Rudd et al., 2006). Chronbach's alpha for this sample was .91 suggesting a high level of internal consistency.

Procedures

Following approval by the university's Institutional Review Board, participants were recruited using a variety of methods. These methods included; e-mail advertisements sent to various PA, NP, and MD graduate programs, a Facebook advertisement, advertisement at medical conferences, and the snowball technique starting with a convenience sample. The study was advertised as a research study focusing on PCPs and student's reaction to patient illness. The questionnaires and IAT were presented online using the survey software Inquisit. Because the questionnaires assess sensitive subjects that may elicit socially desirable responses from the participants, the online format was thought to be the best option to ensure as much confidentiality as possible for the PCPs and students. As another measure to ensure confidentiality, participant names were not asked for at any time in the study and they did not agree to the consent form with a signature but instead with an item that states, I agree to participate/I do not agree to participate question. The study lasted approximately 30-40 minutes and included measures assessing for explicit (AQ-27) and implicit stigma (IAT), a distractor measure (MCRS), a measure assessing for Likelihood to Assess for SI, a short vignette assessing for clinical decision making and a short demographics questionnaire (see attached protocols). Participants first entered Qualtrics where they were given informed consent (see attached protocols) and if they consented they were transferred to the Inquisit website where they proceeded through the survey beginning with the demographics questionnaire. Participants were informed that they were able to stop participating at any time.

Analysis Plan

For preliminary analysis, a one sample t-test was conducted to determine if the IAT scores were significantly greater than zero and if the AQ-27 scores were significantly greater

than five. Also, one-way ANOVA's were conducted to assess whether there were significant differences in the demographic variables of time in practice, type of licensure, age, sex, and population on scores in the IAT, AQ-27 mean, and Likelihood to Assess for SI mean.

This study used a linear regression for the first hypothesis to evaluate the prediction and correlation of the implicit stigma task (IAT) from the explicit stigma task (AQ-27 mean score). For the second hypothesis a discriminant function analysis (DFA) was conducted to assess whether implicit stigma (IAT difference score) and explicit stigma (AQ-27 mean score) could predict clinical decision making, specifically what the PCPs and students chose to assess for in the patient vignette. The responses to the assessment question in the vignette were operationalized into three groups (assess for suicidal ideation, assess for depression, assess for no mental health issue).

For the third hypothesis, a binary logistic regression was conducted with the binary dependent variable being formal mental health recommendations (psychotropic medications, referral to mental health provider) or no formal mental health recommendations and the independent variables being implicit stigma (IAT score), explicit stigma (AQ-27 mean score), and the vignette assessment response (assess for suicidal ideation, assess for depression, assess for no mental health issue). For the purpose of the binary logistic regression the dependent variable was coded "formal mental health recommendations" as zero and "no formal mental health recommendations" as one with the intent to identify which independent variables will identify those PCPs and students who do not make formal mental health recommendations. The vignette assessment response was categorically coded with "assess for suicidal ideation" as zero, "assess for depression" as one and "assess for no mental health issue" as two with the intent

again being to identify those PCPs and medical students who only assess for depression or assess for no mental health issues.

CHAPTER III

RESULTS

The data was checked for accuracy and cleaned in Excel, then transferred to SPSS 22 for testing of the hypotheses. The IAT data was cleaned according to the recommendations by Greenwald, Nosek, and Banaji (2003). This led to six participants being omitted from final analysis due to unusually fast response times (more than 10% of trials with latency less than 300ms), which suggested careless responding. The data was analyzed using Little's Missing Completely at Random (MCAR) test to determine whether cases with missing variables followed a pattern or were completely at random. Little's MCAR test was not significant, indicating there was no identifiable pattern that accounted for the missing data ($X^2 = 1.048$, $df = 4$, $p = .902$). Due to this, a data imputation method was needed to help account for missing data. This study was analyzed using Multiple Imputation and based on the literature, five different sets of data were imputed and used when testing hypotheses and pooled results are reported whenever possible (Schafer, 1997).

Preliminary Analyses

One-way ANOVA's were conducted on the demographic variables of sex, age, licensure, time in practice and population to assess if there were any significant differences between demographic variables and the dependent variables of IAT, AQ-27 mean, and the Likelihood to Assess SI mean. Scores on the dependent variables did not differ by any of the demographic variables, and therefore none were used to evaluate the hypotheses. Table 2 presents *p* value for demographic variables and dependent variables.

Table 2

Demographic Variables and Dependent Variables p Value (N=60)

Demographic Variable	IAT	AQ-27	Likelihood to Assess SI
Sex	.55	.41	.34
Age	.62	.20	.87
Licensure	.43	.09	.08
Time in Practice	.78	.36	.33
Population	.43	.31	.76

For the IAT, positive difference scores indicated evidence of implicit bias against mental illness relative to physical illness and negative difference scores indicated evidence of implicit bias against physical illness relative to mental illness. Of the PCPs and students, 66.7% (N=40) showed an implicit bias against mental illness (*d*=.01-1.08), while 28.3% (N=17) showed an implicit bias against physical illness (*d*= -.04- -.89), and 3.3% (N=2) showed no implicit bias toward mental or physical illness (*d*=0). A one sample t-test was conducted to identify if the IAT scores were significantly different than zero; with zero indicating no mental illness or physical illness bias. No pooled data was produced, so the most conservative of the imputations is reported. IAT scores were statistically greater than zero indicating a mental illness bias (*t*(59)=3.23, *p*=.002; *M*=.20, *SD*=.48) in the sample.

A one sample t-test was conducted to identify if the AQ-27 scores were significantly different than five (middle point in Likert scale). The AQ-27 mean scores were statistically less than five, indicating participants presented themselves explicitly as having less mental illness stigma (*t*(59)=-14.82, *p*=.000; *M*=3.36, *SD*=.86). This supports the idea of socially desirable responding and the need to utilize both implicit and explicit measures when looking at stigma.

As expected, the pooled data for the two explicit measures (AQ-27 and Likelihood to Assess SI) were significantly negatively correlated at the $p<.01$level ($r=-.46$). This indicates that lower scores on the AQ-27 (lower stigma) were correlated with higher scores on the Likelihood to Assess for SI (more likely to assess for SI) and vice versa. Table 3 presents means, standard deviations, and correlations among the independent variables.

Table 3

Descriptive Statistics and Correlations for Key Study Variables (N = 60)

Variable	Mean	SD	1	2	3
1. IAT	.21	.47	-	.08	.08
2. AQ-27	3.36	.85	.08	-	-.46**
3. Likelihood to Assess SI	4.40	.45	.08	-.46**	-

** $p= .01$

Tests of Hypotheses

First Hypothesis. A linear regression was conducted to evaluate the prediction and correlation of the IAT scores to the AQ-27 mean scores. The IAT scores did not significantly predict scores on the AQ-27 (b=.04, t(59)=.59, p=.558). The 95% confidence interval for the slope, -.100 to .185 does contain the value of zero, and therefore IAT scores are not significantly related to the AQ-27 mean scores. The pooled correlation between the AQ-27 mean and the IAT scores did not reach significance (p=.08).

Second Hypothesis. First, the correlation between the Likelihood to Assess for SI scale and whether the participants actually assessed for suicide in the patient vignette was examined. The pooled mean of the Likelihood to Assess for SI scale was close to five, indicating a high level of reported likelihood to assess for suicidal ideation in the presence of different patient symptoms and life experiences (M=4.4, SD=.45). However, only 13.3% (N=8) of the participants

reported they would assess for suicidal ideation or would utilize a screening tool that would assess for suicidal ideation (PHQ-9) after reading the patient vignette. As expected, the Likelihood to Assess for SI scale was not significantly correlated with assessing for suicidal ideation in the patient vignette (p=.126). Due to this, the Likelihood to Assess for SI scale will not be used in further analysis.

A Discriminant Function Analysis (DFA) was conducted to determine whether implicit (IAT) and explicit (AQ-27) stigma scores could predict what participants chose to assess for after reading the patient vignette. The vignette assessment answers were operationalized into three groups which included; assess for suicidal ideation, assess for depression, no mental health assessment. The predictor variables were entered into the model step-wise to better illustrate whether implicit or explicit stigma or both, best predicted what the participants chose to assess for. No pooled data was produced, so the results reported are the most conservative of the imputations.

Of the predictor variables, only the implicit stigma score (IAT) significantly contributed to the variance in the vignette assessment groups and was entered into the DFA. The AQ-27 did not significantly contribute to the variance in the assessment groups and was left out of the DFA. The Wilks' Lambda was significant at the $p<.05$ level ($\Lambda = .87, \chi^2$ (2, N=60) =7.914, p=.019) indicating the IAT differentiated significantly among the vignette assessment groups (assess for SI, assess for depression, no mental health assessment). However, the IAT explained only 13% of the variance in the model (canonical correlation=.360). The IAT could correctly classify 57.1% of participants that did not assess for mental illness, 63.6% of participants that assed for depression and 11.1% of those who assessed for SI (overall classification accuracy 55%).

Because the DFA found only one predictor variable (IAT) that significantly contributed to variance, a one-way ANOVA was run to assess differences in the IAT score by vignette assessment group (assess for suicide, assess for depression, no mental health assessment) to further assess the relationship between IAT and vignette assessment. There was a statistically significant effect of between groups (assess for suicide, assess for depression, no mental health assessment) on IAT score at the $p<.05$ level ($F(2, 57)=3.34$, $p=.04$). The significance levels ranged from .01-.04 on the imputations indicating this effect was significant across all imputations. A Tukey post hoc test revealed that the participants who assessed for depression after reading the patient vignette had significantly lower IAT scores than those participants who assessed for no mental illness after reading the patient vignette (.1 +/- .43, $p=.018$). Interestingly, there was no significant difference between the assess for suicide group and the assess for no mental illness group on IAT score.

Third Hypothesis. A binary logistic regression was conducted to assess whether implicit (IAT) and explicit (AQ-27) stigma scores as well as vignette assessment group membership (assess for SI, assess for depression, no mental health assessment) could predict which participants would recommend formal mental health recommendations for the patient in the vignette. All predictor variables were entered into the model at the same time and no pooled data was produced so the results reported are the most conservative of the imputations.

A logistic regression model was statistically significant ($\chi 2\ (4) = 18.65$, $N=60$, $p=.001$; Nagelkerke $R^2=.435$), indicating that the predictors together reliably distinguished between participants who did recommend formal mental health recommendations and participants that did not. The model explained 43.5% (Nagelkerke R^2) of the variance in recommendations. The model with all predictor variables included accurately classified 100% of participants who made

formal mental health recommendations and 53.8% of participants who did not make formal mental health recommendations (90% overall accurate prediction). The prediction model accurately classified 100% of participants who made formal mental health recommendations and 53.8% of participants who did not make formal mental health recommendations (90% overall accurate prediction). The only variable that significantly enhanced prediction of whether participants recommended formal mental health recommendations was if the participant assessed for mental illness in the patient vignette (p=.01). Participants who did not assess for mental illness in the patient vignette were 51.9 times more likely to not make formal mental health recommendations than participants that assessed for suicide or assessed for depression. This highlights the importance of assessment in order to make appropriate recommendations.

CHAPTER IV

Manuscript Prepared for Submission

Abstract

Although there has been an abundance of research in the last thirty years about primary care providers (PCPs) last contact with patients before they completed suicide, little is known about what may impede a PCPs ability to identify suicidal ideation in patients. The current study investigated implicit and explicit bias toward mental illness compared to physical illness among PCPs and students and how this may affect clinical decision making and identification of suicidal ideation in patients. The participants completed an online survey which assessed implicit stigma, explicit stigma, and clinical decision making in regard to a vignette that depicted a suicidal patient that presented with both physical and mental illness symptoms. The implicit and explicit stigma tasks were not significantly correlated indicating that self-reported level of mental illness stigma is not a reliable picture of actual bias. A Discriminant Function Analysis revealed the implicit stigma task (IAT) was the best predictor of clinical decision making in regard to what the participants would further assess for in the patient vignette. Participants with higher levels of implicit mental illness bias were less likely to assess for any mental illness issue in the patient vignette. A Logistic Regression revealed the best predictor for making appropriate recommendations was what was assessed for in the patient vignette. The study findings are consistent with previous literature that identified implicit stigma as a better predictor of decision making than explicit stigma. Level of implicit mental illness stigma may be one of the many

explanations for PCPs missing suicidal ideation in patients. PCPs and students should be encouraged to investigate their level of implicit mental illness stigma and educated on how this may impact their clinical decision making with at risk patients.

Introduction

Rural populations face unique challenges in accessing and utilizing mental health care. There is a significant lack of access to mental health professionals in rural areas, with 60% of mental health care professional shortage areas residing in rural parts of the country (United States Department of Health and Human Services, 2011). This lack of access to care is especially concerning given there is no difference between rural and urban areas in rates of depression and severe mental illness (Breslau et al., 2014). While people in rural areas do not differ from their urban counterparts in rate of mental illness they do differ in a very concerning way, they complete suicide at a higher rate (Hirsch & Cukrowicz, 2014; Jones et al., 2011). Racial, ethnic and sexual minorities as well as Veterans are also at a higher risk for suicide when they reside in rural areas (Hirsch & Cukrowicz, 2014). Rural residents who completed suicide were less likely to have a psychiatric diagnosis at the time of their death, less likely to have ever received mental health care and less likely to have previously attempted suicide (Searles et al., 2014). Due to lack of access to care, rural residents often seek help for mental illness from their primary care provider (PCP), clergy, or family and friends (Hirsch & Cukrowicz, 2014). All of this combined makes rural residents a high risk group when it comes to suicide and mental illness. Lack of access to mental health care for this high risk group, means that PCPs may be the one healthcare professional that has a chance to conduct an intervention that could save a life. Due to this, rural PCPs are the focus of this study.

There has been an abundance of research in the last thirty years about PCPs last contact with patients before they completed suicide. The research shows that between 40-87% of patients who completed suicide had met with their PCPs in the last three months of their life (Cho, Kang, Moon, Suh, Kyoung & Kim, 2012; Draper, Snowdon &Wyder, 2008; Leo, Draper, Snowdon & Kolves, 2013; Schulberg, Hyg, Bruce, Lee, Williams & Dietrich, 2004). Although the PCPs may have had contact with a patient in the last three months of their life, it is unknown in many of the studies whether the patient was actively suicidal at that time. Nonetheless, this is still an area of potential intervention and therefore deserves attention.

The importance of increasing identification of suicidal ideation in patients is stressed in the literature, and training to help increase identification has shown to be effective in decreasing suicides in the short term (Rihmer, Rutz & Pihlgren, 1995; Schulberg et al., 2004). Despite this potential health effect, research up until this point has not thoroughly studied what may be preventing PCPs from identifying suicidal patients. Possible reasons given in the literature for not identifying suicidal patients include; PCPs having little confidence in working with suicidal patients, lack of time spent with patients, insufficient training in mental health issues and fear of prompting suicide by assessing for it (Krupinski & Tiller, 2001; Leo, Draper, Snowdon & Kolves, 2013; Schulberg et al., 2004). No known study has examined the PCPs level of stigma in relation to recognizing suicidal ideation in their patients and clinical decision making for those patients. This study proposes that a higher level of stigma in rural PCPs will have an effect on their ability to identify suicidal ideation in a patient vignette and will also affect their decision making about treatment recommendations.

Literature Review

Last Contact Before Suicide

The reason for a patient's last visit before completing suicide is varied in the research. In studies that included both psychiatrists and PCP's, mental illness symptoms were reported as the main reason for the last visit before suicide in between 50-62% of the patients (Draper, Snowdon & Wyder, 2008; Isometsa et al., 1995). Other frequently cited reasons for the last visit in the literature were a scheduled follow up, or a physical complaint such as gastrointestinal distress, headaches and migraines, back problems, pain, fatigue, respiratory symptoms or cardiovascular symptoms (Cho et al., 2012; Draper, Snowdon & Wyder, 2008; Hirschfield & Russell, 1997; Isometsa et al., 1995; Pan, Lee, Chiang & Liao, 2009; Schulberg et al., 2004; Trivedi, 2004).

The percentage of patients who present to primary care settings with physical or somatic symptoms instead of psychological symptoms varies in the research. Snowdon and Wyder (2008) reported 22% of patients who completed suicide reported physical symptoms while other studies reported up to 69% of patients that meet criteria for major depressive disorder present with physical symptoms (Simon et al., 1999). The research shows less than 54% of patients who completed suicide spoke to their PCP about having suicidal thoughts, with some studies citing only 19% (Isometsa et al., 1995; Schulburg et al., 2004). Despite the discrepancies in the literature what is noted is that patients nearly half of the time come to primary care with physical symptoms instead of psychological and do not report having suicidal thoughts. This makes a PCPs task of diagnosing a mental illness or identifying suicidal ideation much more difficult. This also indicates that almost half of the time patients do come in to their last visit and report suicidal thoughts or psychological symptoms. This is concerning as this may indicate there was a limited response to these suicidal thoughts or psychological symptoms by PCPs.

Missing Suicidal Ideation

In a study conducted by Davidsen (2011), PCPs reported they only assessed for suicidal ideation in patients who were diagnosed with depression, and even among those patients with a diagnosis of depression they were not assessing for suicidal ideation regularly. This is disconcerting because research has shown PCPs underestimate the percentage of patients who suffer from depression (Krupinski &Tiller, 2001). If PCPs underestimate the number of patients they have with depression and only assess for suicidal ideation in patients already diagnosed with depression, this may lead to many patients experiencing suicidal ideation going unnoticed. Another concern of only assessing patients who have a diagnosis is that the research has shown between 20-70% of patients who completed suicide were diagnosed with a mental illness before their death (Draper, Snowdon & Wyder, 2008; Pan, Lee, Chiang & Liao, 2009). This large discrepancy in percentages is likely due to some studies including psychiatrists as well as PCP's in their research. Despite this, between 30 and 80% of patients who completed suicide did not have a diagnosed mental illness at the time of their death (Draper, Snowdon & Wyder, 2008; Pan, Lee, Chiang & Liao, 2009). Beyond this, one study showed in only 3% of patients who completed suicide did the physician note in their medical records there was a suicide risk (Schulberg et al., 2004).

Morgan et al. (2013) reported that 95% of the PCPs in their study could identify depression in a vignette but only 12% correctly identified suicidal thoughts. Draper et al. (2008), showed that 38% of health care providers did conduct a suicide assessment on their patient prior to their suicide, but did not feel the patient was actually a threat to themselves. The difference between what the patient may have been trying to convey and what the PCPs believed about their suicidal ideation is troubling. One possible explanation for this difference may be aspects of the

PCPs thoughts and attitudes about suicide and mental illness, a factor that will be examined in this study.

Of the literature that did speak of PCPs assessment for suicidal ideation in patients, a meta-analysis by Schulberg et al. (2004) reported physicians feared they would prompt suicide by asking patients about suicidal ideation. They also identified that physicians may rely on the patient to initiate the conversation about suicidal ideation (Schulberg et al., 2004). This practice is especially concerning as only 19-54% of patients who completed suicide informed their providers of their suicidal ideation and plan (Schulberg et al., 2004). Leo, Draper, Snowdon and Kolves (2013) reported other reasons for PCPs not assessing whether patients were experiencing suicidal ideation such as a lack of information about negative life events of the patient, lack of time with patients and insufficient training in mental health issues. In a large study conducted by Krupinski and Tiller (2001) PCPs reported feeling confident in the use of both non-pharmacological and pharmacological treatment of depression but reported feeling less confident in their knowledge and skills to deal with suicidal patients. Even though PCPs may feel confident in diagnosing and treating depression they are not adequately identifying suicide risk in patients. The present study intends to focus on PCPs identification of suicidal ideation and what factors may be impeding this identification.

Primary Care Provider Stigma

The research shows perception of mental illness stigma has an adverse effect on a PCPs judgment about their own mental health (Adams, Lee, Pritchard & White, 2010; White, Shiralkar, Hassan, Galbraith & Callaghan, 2006). These studies examined mental illness stigma in the medical profession directed toward its members, but few studies have looked at PCPs level of perceived and personal stigma about mental illness in general. One study looked at personal

and perceived stigma of mental illness in PCPs in comparison with psychiatrists, psychologists and the general population (Reavley, Mackinnon, Morgan & Jorm, 2013). Out of the groups of professionals, PCPs had significantly higher scores on both of the personal stigma variables (Reavley, Mackinnon, Morgan & Jorm, 2013). PCPs endorsed statements such as believing they would be weak but not sick if they had a mental illness as well as believing they would be unpredictable and dangerous if they had a mental illness. The PCPs and psychiatrists in the study had a significantly higher score on the social distance scale than psychologists (Reavley, Mackinnon, Morgan & Jorm, 2013). The general community participants in the study showed significantly higher personal stigma but there was no significant difference between PCPs and the general public on perceived stigma or on social distance (Reavley, Mackinnon, Morgan & Jorm, 2013). This study indicates that despite PCPs education and experience they hold more personal stigmatizing beliefs about mental illness than other health professionals. PCPs also do not significantly differ from the public on perceived stigma and wanting social distance from someone who is mentally ill (Reavley, Mackinnon, Morgan & Jorm, 2013).

Stigma of Suicide

Recent research has looked specifically at the stigma of suicide as well as the literacy of suicide within the medical field (Chan, Batterham, Christensen & Galletly, 2014). When looking at literacy of suicide there was a significant difference between medical students who were farther along in their training compared to students who were just beginning or were in the general university sample of students (Chan, Batterham, Christensen & Galletly, 2014). This suggests that medical students are gaining information about suicide as they progress through their training and are exposed to suicidal patients. Despite gaining knowledge about suicide, the section of the Literacy of Suicide Scale that performed the most poorly across all samples was

the recognition of suicidal symptoms section (Chan, Battherham, Christensen & Galletly, 2014). There was no significant difference between medical students and the general student population in regard to the stigma related to suicide (Chan, Battherham, Christensen & Galletly, 2014). The medical students in the study had difficulty recognizing risk factors associated with suicidal behavior or signs of distress (Chan, Batterham, Christensen & Galletly, 2014). This corresponds with previous research where only 12% of PCPs identified suicidal ideation in a vignette depicting a patient with depression and suicidal thoughts (Morgan, Jorm & Reavley, 2013). While it seems that medical students are gaining some literacy about suicide as they progress through their training, their level of stigma toward suicide does not significantly differ compared to the general population of college students and they continue to show difficulty in recognizing factors associated with suicide despite level of training.

Overall the literature suggests PCPs have a high level of perceived stigma within their profession and high levels of personal stigma regarding mental illness (Adams, Lee, Pritchard & White, 2010; Reavley, Mackinnon, Morgan & Jorm, 2013; White et al., 2006). PCPs as well as medical students do not differ significantly from the general population in regard to endorsement of suicide stigma and perceived mental illness stigma (Chan, Batterham, Christensen & Galletly, 2014; Reavley, Mackinnon, Morgan & Jorm, 2013). It is unknown what effect high levels of stigma in PCPs may have upon recognizing suicidal ideation in patients and decision making in regard to treatment for suicidal ideation. This is especially distressing when thinking of PCPs who are working in rural areas. These practitioners may not have access to mental health professionals as referral sources and may have to treat mental illness related problems in their patients on their own.

Importance of Rural PCPs

Despite previous research that has stated mental illness is more common in urban areas, a recent study conducted by Breslau, Marshall, Pincus and Brown (2014) reported finding no difference between rural and metropolitan areas in depression and severe mental illness in youth and adults. Although there is not a difference in levels of depression and severe mental illness in rural versus urban areas (Breslau, Marshall, Pincus & Brown, 2014) there is a difference in suicide rates between these areas with rural residents completing suicide at a higher rate than urban residents (Hirsch & Cukrowicz, 2014; Jones, Cook & Wang, 2011; Searles, Valley, Hedegaard & Betz, 2014). Racial, ethnic and sexual minorities as well as veterans are also at a higher risk for suicide when they reside in rural areas (Hirsch & Cukrowicz, 2014).

A study conducted by Searles, Valley, Hedegaard & Betz (2014) showed rural residents in the United States who completed suicide were less likely to have received mental health care, less likely to have previously attempted suicide and were less likely to have a psychiatric diagnosis at the time of their death than urban residents. This may be due to the significant difference in availability of mental health professionals to assist those in need in these areas. There is a lack of access to mental health professionals in rural areas with 60% of the mental health care professional shortage areas residing in rural parts of the country (United States Department of Health and Human Services, 2011).

Rural residents experience mental illness at a similar rate to their urban counterparts but complete suicide at a much higher rate (Hirsch & Cukrowicz, 2014; Breslau, Marshall, Pincus & Brown, 2014). These residents also often lack the mental health care resources that their urban counterparts have. Because of this lack of access, rural residents often seek help for mental health issues from PCPs, (Komiti, Judd & Jackson, 2006; Robinson et al., 2012; Andren et al.,

2013) leaving primary care as the de facto mental health system in these areas. Beyond the barrier of access, stigma as well as rural beliefs and attitudes have been linked to a decrease in help-seeking behaviors for mental illness (Komiti, Judd & Jackson, 2006; Robinson et al., 2012). Although the attitudes, beliefs and stigma of rural residents may complicate a PCPs job when trying to diagnose mental illness and identify suicidal ideation these PCPs are often the first responders to these patients. The high level of suicide in rural areas makes early intervention and identification of mental illness and suicidal ideation a priority.

Study Purpose

Both PCPs and rural residents report high levels of perceived stigma as well as personal stigma regarding mental illness. The PCPs and students in the proposed study work in rural areas or in predominately rural states and are not separate from the beliefs, values and culture of these areas. Little is currently known about PCPs level of mental illness stigma and the impact this may have on patient care. Because of this, the aim of this study is to examine whether the level of mental illness stigma in rural PCPs and students has an effect on their recognition of suicidal ideation and on their decision making for a patient with suicidal ideation.

This study examined three hypotheses. The first hypothesis is that scores on the implicit stigma task (IAT) and explicit stigma task (AQ-27) will not be significantly correlated. The second hypothesis is that scores on implicit and explicit stigma tasks as well as self-reported Likelihood of Assessing for SI in different scenarios will predict what the students and PCPs would assess for after reading the patient vignette. The last hypothesis is that scores on implicit and explicit stigma tasks as well as what the participants assessed for in the patient vignette will predict whether the students and PCPs recommend formal mental health recommendations (psychopharmacological intervention or referral to a mental health provider).

Methods

Participants

Participants who met the study criteria included 48 females and 12 males. Of the participants 22 were between the ages of 20-29 (36.7%), 16 were between the ages of 40-49 (26.7%), 15 were between the ages of 30-39 (25%), four participants were between the ages of 50-59 (6.7%) and two participants were older than 60 (3.3%). The majority of the participants self-identified as White (*n*=53, 88.3%), with a smaller proportion identifying as Asian (*n*=5, 8.3%) and Hispanic (*n*=2, 3.3%). The largest proportion of participants were nurse practitioner students (*n*=29, 48.3%) followed by physician assistant students (*n*=10, 16.7%), physician assistants (*n*=7, 11.7%), nurse practitioners (*n*=7, 11.7%), medical doctors (*n*=6, 10%), and one medical student (*n*=1, 1.7%). Twenty-six participants had been in practice from 1-5 years (43.3%), five for 11-19 years (8.3%), four for 6-10 years (6.7%), three for over 20 years (5%) and students who noted this question was not applicable as they were still in school (n=22, 36.7%). The majority of participants worked in a rural setting with a population under 3,000 (*n*=45, 75%), with a smaller proportion working in a setting with a population over 3,000 but in a self-identified rural area (*n*=12, 20%) and three participants who did not answer (5%).

Participants reported practicing in eighteen different states including; Montana (*n*=11, 18.3%), Washington (*n*=7, 11.7%), Georgia (*n*=7, 11.7%), Idaho (*n*=7, 11.7%), Wyoming (*n*=4, 6.7%), Oregon (*n*=4, 6.7%), North Dakota (*n*=4, 6.7%), South Dakota (*n*=3, 5%), Minnesota (*n*=2, 3.3%), Nebraska (*n*=2, 3.3%) and one participant each from Texas, Arizona, Colorado, Oklahoma, New Jersey, Maine, Michigan and California (*n*=1, 1.7%) as well as one participant from British Columbia (*n*=1, 1.7%). Complete demographic information including sex, age, race, licensure, population, state of practice, and time in practice is presented in Table 1. At the

completion of the study, participants had the option of entering a raffle to win a $200 Amazon gift card. Utilizing the g-power software, the study had enough participants to achieve sufficient power (.80) for the discriminant function analysis but did not have enough participants to achieve sufficient power for the binary logistic regression.

Measures

Demographics. A short demographics questionnaire was given to participants after they gave consent to participate in the study. The demographics questionnaire asked for age, sex, race, type of licensure, time in practice and the estimated population of the area they currently practice or train in.

Implicit Stigma Measure (IAT). To assess for the level of implicit mental illness stigma the participants were given an Implicit Association Task (IAT). The Implicit Association Task was used to assess automatic associations to physical and mental illness. The IAT has been widely utilized in bias research and has adequate psychometric properties (Greenwald & Nosek, 2001; Teachman, Wilson & Komarovskaya, 2006). The IAT utilizes paired concepts and two stimulus groups with the outcome measure being reaction time (Greenwald & Banaji, 1995; Stier & Hinshaw, 2007; Teachman, Wilson, & Komarovskaya, 2006). In the IAT the participant is asked to classify words into stimulus groups and concept pairs as quickly as they can (Greenwald & Banaji, 1995).

For this study, the IAT paired concepts and stimulus groups were adapted from the work of Teachman, Wilson, & Komarovskaya (2006) and Monteith and Pettit (2011). The two stimulus groups in this study are mental illnesses (Depression, ADHD, Generalized Anxiety Disorder) and physical illnesses (Diabetes, Heart Disease, Asthma). The mental illnesses were chosen due to how frequently they may be seen in a PCPs office and ease of understanding of

these illnesses. Severe mental illnesses were intentionally left out so as not to overly influence the results. The physical illnesses were chosen due to how frequently they may be seen in a PCPs office and due to the possibility of either biological or behavioral determinants of these illnesses. The intent of this was to not use purely biological illness (i.e. Cerebral Palsy, Parkinson's), because this may also sway the results of the IAT. The concept pairs used in the IAT are good/bad, blameworthy/innocent, dangerous/harmless, and competent/helpless (Teachman, Wilson, & Komarovskaya, 2006). It was hypothesized that participants would be quicker to pair negative concepts (bad, dangerous, etc.) with mental illness than physical illness.

Explicit Stigma Measure (AQ-27). To assess for explicit stigma, the 27-item Attribution Questionnaire (AQ-27) was used. The AQ-27 measures endorsement of affective, cognitive and behavioral tendencies of stigma through the rating of a vignette describing an individual with schizophrenia (Corrigan et al., 2003). Responses to the vignette are rated on a 9-point Likert scale with 1=not at all or not likely, and 9=very likely or very much. The AQ-27 assesses endorsement of mental health stigma on nine factors. The factors include blame, anger, pity, help, dangerousness, fear, avoidance, segregation and coercion (Corrigan, Watson, Warpinski & Garcia, 2004). The AQ-27 has been found to be valid and has a one week, test-retest reliability of (r>.75) for six of the nine factors (Brown, 2008; Corrigan et al., 2004). The AQ-27 was used as it assesses desire for social distance as well as attitudes toward coercion and segregation that are not accounted for by the IAT. The Chronbach's alpha for the current sample was .87 indicating a high level of internal consistency for the sample.

Medical Condition Regard Scale (MCRS*)*. The Medical Condition Regard Scale (MCRS) looks at whether medical professionals find a patient with a medical condition to be enjoyable, worthy of medical resources and treatable (Christison, Haviland & Riggs, 2002).

Participants rated their level of agreement with questions on a 6-point Likert scale with 1= strongly disagree and 6= strongly agree. Questions cover topics such as whether patients with a certain condition irritate the practitioner, are satisfying to work with or if a patient with that condition is difficult to work with (Christison, Haviland & Riggs, 2002). This scale was used as a filler for the purposes of this study. The MCRS was found to be valid and reliable with a test-retest reliability of .84 and a coefficient alpha of .87 (Christison, Haviland & Riggs, 2002).

Clinical Decision Making Vignette. The vignette includes a patient who presents for an appointment with a mix of physical as well as mental illness symptoms. The physical illness symptoms include gastrointestinal distress, while the mental illness symptoms include hopelessness, decreased enjoyment in activities, decreased motivation and suicidal ideation. In the vignette there are also symptoms that could be either due to physical or mental illness which include; lack of energy, difficulty falling and staying asleep, decrease in appetite and feelings of fatigue. The mix of physical as well as mental illness symptoms was done purposefully as it seems that many patients in their last contacts with practitioners before completion of suicide did not explicitly address suicidal ideation and instead focused on physical symptoms (Cho et al., 2012; Draper, Snowdon & Wyder, 2008; Pan, Lee, Chiang & Liao, 2009; Trivedi, 2004). The participants were instructed to read the vignette and then identify what diagnosis they would give the patient, what they would assess for with this patient and what recommendations, referrals, or medications they would recommend for the patient if all resources were available to them.

Likelihood to Assess for Suicidal Ideation. This scale was used to explore the self-reported likelihood the participants would assess for suicidal ideation in scenarios and symptoms commonly associated with suicide on a five point Likert scale. Symptoms and experiences included lack of improvement or worsening of symptoms, onset of physical illness, lack of social

support, chronic pain, frequent thoughts of death or dying, hopelessness, increased alcohol or drug use, withdrawal, agitation, and acting impulsively (American Psychiatric Association, 2003; Furlanetto & Stefanello, 2011; Rudd et al., 2006). Chronbach's alpha for this sample was .91 suggesting a high level of internal consistency.

Procedures

Following approval by the university's Institutional Review Board, participants were recruited using a variety of methods. These methods included; e-mail advertisements sent to various PA, NP, and MD graduate programs, a Facebook advertisement, and the snowball technique starting with a convenience sample. The study was advertised as a research study focusing on rural PCPs and student's reaction to patient illness. Participants were directed to a secure website (Qualtrics) and were presented with an informed consent. If they consented to participate in the research they were sent to the Inquisit website where they completed the study measures.

After participants entered the Inquisit website they proceeded through the survey beginning with the demographics questionnaire. Participants were informed that they were able to stop participating at any time. Because the questionnaires assessed sensitive subjects that may elicit socially desirable responses from the participants, the online format was thought to be the best option to ensure as much confidentiality as possible for the PCPs and medical students. As another measure to ensure confidentiality, participant names were not asked for at any time in the study and they did not agree to the consent form with a signature but instead with an item that states, I agree to participate/I do not agree to participate question. The study lasted approximately 30-40 minutes and included measures assessing for explicit (AQ-27) and implicit stigma (IAT), a

filler measure (MCRS), the Likelihood to Assess for SI task, a short vignette assessing for clinical decision making and a short demographics questionnaire (see attached protocols).

RESULTS

The data was checked for accuracy and cleaned in Excel, then transferred to SPSS 22 for testing of the hypotheses. The IAT data was cleaned according to the recommendations by Greenwald, Nosek, and Banaji (2003). This led to six participants being omitted from final analysis due to unusually fast response times (more than 10% of trials with latency less than 300ms) which suggested careless responding. The data was analyzed using Little's Missing Completely at Random (MCAR) test to determine whether cases with missing variables followed a pattern or were completely at random. Little's MCAR test was not significant, indicating there was no identifiable pattern that accounted for the missing data ($X^2 = 1.048$, $df = 4$, $p = .902$). Due to this, a data imputation method was needed to help account for missing data. This study was analyzed using Multiple Imputation and based on the literature, five different sets of data were imputed and used when testing hypotheses and pooled results are reported whenever possible (Schafer, 1997).

Preliminary Analyses

One-way ANOVA's were conducted on the demographic variables of sex, age, licensure, time in practice and population to assess if there were any significant differences between demographic variables and the dependent variables of IAT, AQ-27 mean, and the Likelihood to Assess SI mean. Scores on the dependent variables did not differ by any of the demographic variables, and therefore none were used to evaluate the hypotheses. Table 2 presents *p* value for demographic variables and dependent variables.

Table 2

Demographic Variables and Dependent Variables p Value (N=60)

Demographic	IAT	AQ-27	Likelihood to Assess SI
Sex	.55	.41	.34
Age	.62	.20	.87
Licensure	.43	.09	.08
Time in Practice	.78	.36	.33
Population	.43	.31	.76

For the IAT, positive difference scores indicated evidence of implicit bias against mental illness relative to physical illness and negative difference scores indicated evidence of implicit bias against physical illness relative to mental illness. Of the PCPs and students, 66.7% (N=40) showed an implicit bias against mental illness (*d*=.01-1.08), while 28.3% (N=17) showed an implicit bias against physical illness (*d*= -.04- -.89), and 3.3% (N=2) showed no implicit bias toward mental or physical illness (*d*=0). A one sample t-test was conducted to identify if the IAT scores were significantly different than zero, with zero indicating no mental illness or physical illness bias. No pooled data was produced, so the most conservative of the imputations is reported. IAT scores were statistically greater than zero indicating a mental illness bias ($t(59)=3.23$, $p=.002$; $M=0.20$, $SD=.48$) in the sample.

A one sample t-test was conducted to identify if the AQ-27 scores were significantly different than five (middle point in Likert scale). The AQ-27 mean scores were statistically less than five, indicating that participants presented themselves explicitly as having less mental illness stigma ($t(59)=-14.82$, $p<.001$; $M=3.36$, $SD=.86$). This supports the idea of socially desirable responding and the need to utilize both implicit and explicit measures when looking at stigma.

As expected, the pooled data for the two explicit measures (AQ-27 and Likelihood to Assess SI) were significantly negatively correlated at the $p<.01$level (r=-.46). This indicates that lower scores on the AQ-27 (lower stigma) were correlated with higher scores on the Likelihood to Assess for SI (more likely to assess for SI) and vice versa. Table 3 presents means, standard deviations, and correlations among the independent variables.

Table 3

Descriptive Statistics and Correlations for Key Study Variables (N = 60)

Variable	Mean	SD	1	2	3
1. IAT	.21	.47	-	.08	.08
2. AQ-27	3.36	.85	.08	-	-.46**
3. Likelihood to Assess SI	4.40	.45	.08	-.46**	-

** p= .01

Tests of Hypotheses

First Hypothesis. A linear regression was conducted to evaluate the prediction and correlation of the IAT scores to the AQ-27 mean scores. The IAT scores did not significantly predict scores on the AQ-27 (b=.04, t(59)=.59, p=.56. The 95% confidence interval for the slope, -.100 to .185 does contain the value of zero, and therefore IAT scores are not significantly related to the AQ-27 mean scores. The pooled correlation between the AQ-27 mean and the IAT scores did not reach significance (p=.08).

Second Hypothesis. First, the correlation between the Likelihood to Assess for SI scale and whether the participants actually assessed for suicide in the patient vignette was examined. The pooled mean of the Likelihood to Assess for SI scale was close to five, indicating a high level of reported likelihood to assess for suicidal ideation in the presence of different patient symptoms and life experiences (M=4.4, SD=.45). However, only 13.3% (N=8) of the participants

reported they would assess for suicidal ideation or would utilize a screening tool that would assess for suicidal ideation (PHQ-9) after reading the patient vignette. As expected, the Likelihood to Assess for SI scale was not significantly correlated with assessing for suicidal ideation in the patient vignette (p=.126). Due to this, the Likelihood to Assess for SI scale will not be used in further analysis.

A Discriminant Function Analysis (DFA) was conducted to determine whether implicit (IAT) and explicit (AQ-27) stigma scores would predict what participants chose to assess for after reading the patient vignette. The vignette assessment answers were operationalized into three groups which included; assess for suicidal ideation, assess for depression, no mental health assessment. The predictor variables were entered into the model step-wise to better illustrate whether implicit stigma, explicit stigma, or both best predicted what the participants chose to assess for. No pooled data was produced, so the results reported are the most conservative of the imputations.

Of the predictor variables, only the implicit stigma score (IAT) significantly contributed to the variance in the vignette assessment groups and was entered into the DFA. The AQ-27 did not significantly contribute to the variance in the assessment groups and was left out of the DFA. The Wilks' Lambda was significant at the p<.05 level ($\Lambda = .87, \chi^2$ (2, N=60) =7.91, p=.02), indicating the IAT differentiated significantly among the vignette assessment groups (assess for SI, assess for depression, no mental health assessment). However, the IAT explained only 13% of the variance in the model (canonical correlation=0.36). The IAT could correctly classify 57.1% of participants that did not assess for mental illness, 63.6% of participants that assed for depression and 11.1% of those who assessed for SI (overall classification accuracy 55%).

Because the DFA found only one predictor variable (IAT) that significantly contributed to variance, a one-way ANOVA was run to assess differences in the IAT score by vignette assessment group (assess for suicide, assess for depression, no mental health assessment) to further assess the relationship between IAT and vignette assessment. There was a statistically significant effect between groups (assess for suicide, assess for depression, no mental health assessment) on IAT score at the $p<.05$ level ($F(2, 57)=3.34$, $p=.04$). The significance levels ranged from .01-.04 on the imputations indicating this effect was significant across all imputations. A Tukey post hoc test revealed that the participants who assessed for depression after reading the patient vignette had significantly lower IAT scores than those participants who assessed for no mental illness after reading the patient vignette (.1 +/- .43, $p=.02$). Interestingly, there was no significant difference between the assess for suicide group and the assess for no mental illness group on IAT score.

Third Hypothesis. A binary logistic regression was conducted to assess whether implicit (IAT) and explicit (AQ-27) stigma scores as well as vignette assessment group membership (assess for SI, assess for depression, no mental health assessment) could predict which participants would recommend formal mental health recommendations for the patient in the vignette. All predictor variables were entered into the model at the same time and no pooled data was produced so the results reported are the most conservative of the imputations.

The logistic regression model was statistically significant ($\chi 2$ (4) =18.65, $N=60$, $p=.001$; Nagelkerke $R^2=.435$), indicating that the predictors together reliably distinguished between participants who did made formal mental health recommendations and participants that did not. The model explained 43.5% (Nagelkerke R^2) of the variance in recommendations. The model with all predictor variables included accurately classified 100% of participants who made formal

mental health recommendations and 53.8% of participants who did not make formal mental health recommendations (90% overall accurate prediction). The only variable that significantly enhanced prediction of whether participants made formal mental health recommendations was if the participant assessed for mental illness in the patient vignette (p=.01). Participants who did not assess for mental illness in the patient vignette were 51.9 times more likely to not make formal mental health recommendations than participants who assessed for suicide or assessed for depression. This highlights the importance of assessment in order to make appropriate recommendations.

Discussion

The current study investigated implicit and explicit bias toward mental illness compared to physical illness among PCPs and students and how this may affect clinical decision making and identification of suicidal ideation in a patient vignette. Interestingly, there were no significant differences found in level of mental illness bias between students and practicing providers and no significant differences seen when accounting for time in practice, age, sex and area of practice on level of bias. The majority of PCPs and students showed an implicit bias toward mental illness and explicitly reported having lower levels of mental illness bias. Consistent with the research and as hypothesized, the scores on the measure of explicit mental illness bias (AQ-27) did not significantly correlate with the measure of implicit bias (IAT) (Monteith & Pettit, 2011; Nosek, Banaji, & Greenwald, 2002; Stier & Hinshaw, 2007). These results indicate either the presence of socially desirable responding on the explicit task by the PCPs and students or a lack of insight about their level of implicit mental illness stigma. This is consistent with previous research that showed negative implicit attitudes against a stigmatized group can exist even when participants don't consciously endorse those same negative attitudes

(Nosek, Banaji, & Greenwald, 2002; Teachman, Wilson, & Komarovskaya, 2006). If PCPs and students are responding in a socially desirable way when discussing patients with mental illness or do not have knowledge about their implicit bias against mental illness, there may be no opportunity for discussion and intervention surrounding correcting that bias.

The importance of correcting bias against mental illness was supported in the current study and has been supported in previous research (Bessenoff & Sherman, 2000; Peris, Teachman, & Nosek, 2008; Stier & Hinshaw, 2007). The literature suggests that while implicit and explicit measures of stigma are imperfectly correlated with actual behaviors toward the stigmatized person, implicit measures correlate more strongly with behaviors (Bessenoff & Sherman, 2000; Stier & Hinshaw, 2007). In the current study, implicit stigma was a stronger predictor of differences in clinical decision making in the vignette than explicit stigma. These results support prior research that emphasized the importance of utilizing implicit measures when looking at how stigma may affect decision making (Dovidio, Kawakami & Gaertner, 2002; Greenwald, Poehlman, Uhlmann & Banaji, 2009; Monteith & Pettit, 2011; Rusch et al., 2010).

Consistent with research looking at stigma and clinical decision making (Peris, Teachman, & Nosek, 2008) the current study showed that an implicit measure of stigma (IAT) could significantly differentiate clinical decision making on a patient vignette between the participants. The implicit stigma task (IAT) was able to correctly classify PCPs and students who would not assess for any mental illness after reading the patient vignette at a rate of 57.1% and those who would only assess for depression at a rate of 63.6%. The participants who did not assess for any mental illness or suicidal ideation in the vignette showed the highest mean IAT score (higher mental illness bias).

The Likelihood to Assess for SI task explicitly asked about assessing for suicidal ideation in scenarios that are not always strongly linked with suicidal thoughts such as; onset of significant physical illness, lack of improvement or gradual worsening despite treatment of an illness, lack of social support, chronic pain, withdrawal from family, agitation, and impulsivity (American Psychiatric Association, 2003; Furlanetto & Stefanello, 2011, Rudd et al., 2006). It is notable that this task was not significantly correlated with actually assessing for suicidal ideation in the patient vignette. This indicates that PCPs and students may report they would assess for suicide in many different scenarios, however, they still may not recognize warning signs and follow through with the suicide assessment in clinical practice. The implicit stigma task being associated with PCPs and student's decision making on assessment of mental illness in the patient vignette supports the idea that implicit stigma may impact clinical decision making, especially when the person is not aware that this bias may influence decision making (Peris, Teachman, & Nosek, 2008).

Due to research that supported PCPs choosing less formal interventions for themselves when suffering from mental illness (Adams, Lee, Pritchard & White, 2010), it was hypothesized that PCPs may also recommend less formal interventions for their patients. This was not supported. Overall, the PCPs and students were likely to recommend formal mental health recommendations (SSRI, referral to a mental health specialist) if they reported assessing for suicidal ideation or depression in the vignette. This indicates that if a PCP or student recognizes a mental illness component (either depression or SI) in a patient they may be likely to recommend formal mental health interventions. The strongest predictor of not making formal mental health recommendations was not assessing for any mental illness issue in the vignette.

This highlights the role and the importance of assessment for mental illness and suicidal ideation in making appropriate recommendations for patients.

Of the PCPs and students only 13.3% reported they would assess for suicidal ideation in the patient vignette. This percentage includes people that did not mention suicide assessment explicitly but stated they would give the PHQ9 which has a question about suicidal ideation and thus was counted as suicide assessment. This is significantly concerning as the patient in the vignette reported feelings of hopelessness, lack of motivation, lack of enjoyment in activities they previously enjoyed and a statement about inability to continue living life this way. There were also symptoms of lack of energy, difficulty falling and staying asleep, decreased appetite and feelings of fatigue. To be clear, these symptoms and statements in the vignette were reported in the context of gastrointestinal distress. This was done purposefully as many patients in their last contact with a practitioner before completion of suicide did not explicitly address suicidal ideation and instead focused on vague physical symptoms (Cho et al., 2012; Draper, Snowdon & Wyder, 2008; Pan, Lee, Chiang & Liao, 2009; Trivedi, 2004).

Although few of the PCPs and students identified suicidal ideation, many reported they would assess for depression after reading the vignette (73.3%). This is consistent with previous research that showed PCPs were skilled at identifying depression but were not as skilled at identifying suicidal ideation and risk of suicide (Chan et al., 2014; Morgan, Jorm & Reavley, 2013). This study did not specifically examine whether the participants would have included a suicide assessment when they assessed for depression. If PCPs and students were to assess for depression without assessing for suicidal ideation the patient could still be at high risk for harm to self, even with a referral to specialty mental health. Patients referred to specialty mental health from primary care have a rate of scheduling that appointment at less than 50% with even lower

rates of actually showing up (Kessler, 2012). To complicate this even more, in rural areas a referral to specialty mental health may take longer as there are fewer mental health professionals available and it may incur more time and money due to having to drive long distances to get to mental health professionals. Therefore, rural patients may be even less likely than their urban counterparts to attend a specialty mental health referral. If a PCP identifies depression but does not assess for suicidal ideation and relies on referrals to specialty mental health to do the suicide assessment, patients could be left on their own while at risk of harm to self. The risk of suicide in primary care should elicit a response from the PCP that is equal to the risk of death posed from physical illness.

Limitations/Future Directions

The results of this study provide useful information regarding what may inhibit rural PCPs and students from assessing for suicidal ideation in patients, but there are some limitations that should be noted. First, many participants reported they would assess for depression in the patient vignette. It is unknown if this assessment of depression would include a thorough suicide assessment. Future research should allow the opportunity for further questioning regarding what a depression assessment or a suicide assessment would look like. There is also the question of whether the participants are able to differentiate suicidal ideation from depression, anxiety, PTSD, and other mental illnesses or if they link suicidal ideation mainly to the idea of severe depression. The vignette in this study utilized many symptoms of depression and in future research it may be pertinent to utilize suicidal ideation with symptoms of other mental illnesses. Second, participants who assessed for suicidal ideation in the vignette had the second highest mean on the implicit association task, with no assessment of mental illness showing the highest scores on the implicit association task and assessment of depression showing the lowest scores

(although still showing mental illness bias). This indicates there may be another factor that impacts whether a rural PCP or student will assess for suicide that was not specifically addressed in this study. Future research should include a factor such as literacy of suicide in an attempt to address this issue.

Third, the IAT utilizes response times and the environment in which the participants took the IAT was not able to be controlled. If participants took the IAT in an environment that was distracting, it could have negatively impacted their response time scores and skewed the results. It is notable however, that PCPs frequently have to make decisions in a loud, hurried environment and the results of the IAT (even without controlling for environment) in this study may be an accurate depiction of the responses a PCP or student may give in the actual work environment. Fourth, the study had a small sample size (N=60) and further research would benefit from gaining a larger group of participants.

Fifth, a mix of practicing PCPs as well as students were used out of necessity to gain enough participants. Practicing PCPs have more experience with patients and making recommendations which makes them ideal for future research on this topic, however, rural PCPs can be a difficult population to reach and engage in research. Students were utilized due to difficulty with recruitment of practicing PCPs. The level of education (how far they were in the program) of the students was not assessed and thus level of experience and contact with patients, as well as theoretical knowledge of mental health issues, is unknown. This could be easily addressed in future research with further demographics questions regarding time in program. Sixth, while online research was beneficial to ensure confidentiality and encourage honesty in responding there are limitations to this method. With the online format there was no opportunity to add follow-up questions to clarify responses or to ensure a quiet space for the IAT.

Seventh, the research took close to 25 minutes to complete. The IAT was presented after the demographics in an attempt to reduce the impact of testing fatigue. However, the other scales such as the vignette and Likelihood to Assess for Suicide may have been impacted by testing fatigue. Eighth, along with this the scales were not counter balanced due to the importance of the IAT not being affected by testing fatigue. In future research counterbalancing the scales would be important to rule out testing fatigue and order effects. Finally, participants self-selected to be in the study and may have been swayed to participate by the financial incentive of the gift card drawing. Future research would benefit from coordination with MD, PA, and NP programs to encourage participation in the research as a part of education and continuing education to gather a broader sample of participants. Other future directions for the research include adding rural members of the clergy, school counselors and school administrators to the participant pool as these are other professionals who may have an opportunity to intervene with a rural resident who is considering suicide.

Implications

Despite the decades of research on patients' last contact before completing suicide, the current findings suggest that rural PCPs and students remain unlikely to identify suicidal ideation in a vignette with a patient presenting with a combination of physical and mental illness symptoms. The rural PCPs and students in the current study showed a tendency toward self-reporting low levels of mental illness stigma and high levels of likelihood to assess for suicide, but they were actually more likely to have implicit mental illness stigma and less likely to assess for suicidal ideation in a patient vignette.

PCPs and students in this study did show a high rate of identification of depression and referrals to specialty mental health, but a referral alone may not be enough to ensure the safety of

a suicidal patient. It is important to note that rural PCPs do not always have an easy job of identifying suicidal ideation in practice due to patients presenting with physical symptoms instead of mental and not explicitly stating suicidal thoughts. However, it is also important to emphasize that primary care is often the de facto mental health system in rural areas and PCPs may be the only medical or mental health provider that the patient comes in contact with. The burden of identifying suicidal ideation (even with complicated presentations), creating safety plans and monitoring for risk does lay on the shoulders of many PCPs as referral sources are few and far between in rural areas and rate of follow up to specialty mental health providers even when referred is low.

On a positive note, the current results do show many areas of possible intervention. Broadly, the current results support mental health integration into primary care. Primary care mental health integration has shown positive outcomes for patients as well as providers (less burden, consultation easily accessible). The results of the current study support that many rural PCPs and students could identify depressive symptoms in the patient vignette and would make referrals to specialty mental health. If they are working in a traditional setting where they are suggesting an outside specialty mental health referral and are not identifying suicidal ideation or conducting a suicide assessment themselves, these results aren't promising. However, if the PCPs and students worked in an integrated care setting these results would be more promising as they could refer to a mental health provider on their team who could immediately see the patient and after gathering further information could conduct a suicide assessment.

Although primary care mental health integration is gaining traction, it is not always available in rural areas. Due to this, education for rural PCPs and students remains highly important. Some opportunities for education include the addition of integrated discipline classes

into the curriculum for MD, NP, PA and mental health programs. These classes can provide the opportunity for students from different programs to learn about what each profession does and how they can be of assistance to each other. Faculty and students could present on topics that would be relevant for other disciplines such as suicide assessment in medical settings. These classes could pave the way for interdisciplinary collaboration and education in future work environments.

Other opportunities for intervention include integrating mental illness stigma awareness into MD, NP, and PA programs. This could be achieved by administering the IAT and AQ-27 (to highlight differences between self-reported stigma and implicit stigma) in an attempt to bring awareness to mental illness stigma but also to identify the students who may need the most intervention. After this, addressing how implicit and explicit mental illness stigma among PCPs and students may impact clinical decision making should be discussed. Providing training and opportunities for PCPs and students to openly discuss biases may help them work more effectively with suicidal patients. Finally, increasing suicide literacy would be important so PCPs and students are aware of the many ways in which suicidal ideation may present in primary care in rural areas and the many different life stressors and mental illnesses that can be linked with suicide.

Psychologists can and should play a valuable role in these interventions. Considering the results of the current study there is ample room for advocacy and prevention which are some of the hallmarks of our profession. Psychologists can assist faculty and staff in MD, NP, and PA programs in developing and implementing the above mentioned interventions into the curriculum or as a seminar. They can encourage interdisciplinary collaboration and model that collaboration to highlight the mutual benefits. Psychologists can take an active role in reaching out to

practicing PCPs in their area to not only open the door for some of the interventions mentioned above but to also be less siloed themselves in their practice. Finally, psychologists can advocate at the state level for further suicide and stigma education for rural PCPs. This study has highlighted a potentially low cost area of intervention and rural states with high rates of suicide may be compelled to take heed.

APPENDICES

Appendix A
Demographics

Demographics

1. What is your sex?
    a. Male
    b. Female
    c. Choose not to say
2. What is your age?
    a. 20-29
    b. 30-39
    c. 40-49
    d. 50-59
    e. 60 and older
3. What is your type of Licensure?
    a. Medical Doctor
    b. Doctor of Osteopathy
    c. Physician's Assistant
    d. Nurse Practitioner
4. What is the population of the town or city where you currently practice?

5. How long have you been in practice in a rural setting?
    a. 1-5 years
    b. 6-10 years
    c. 11-19 years
    d. 20 plus years
6. How long have you been in practice?
    a. 1-5 years
    b. 6-10 years
    c. 11-19 years
    d. 20 plus years
7. What type of setting do you work in?
    a. Clinic privately owned by you.
    b. Clinic privately owned by another primary care provider.
    c. Clinic owned by a corporation.
    d. Hospital clinic
    e. Other

Explain:_____

8. On average how much time do you spend with each patient?
    a. 5-10 minutes
    b. 11-15 minutes
    c. 16-20 minutes
    d. 21-25 minutes
    e. 26-30 minutes
    f. Over 30 minutes
9. What type of area did you grow up in?
    a. Rural
    b. Urban

Appendix B
IAT

IAT

Main Stimulus Categories:
Mental Illness (Depression, ADHD, Generalized Anxiety Disorder)
Physical Illness (Diabetes, Heart Disease, Asthma)

Concepts Pairs:
Good (positive, pleasant, excellent) vs. Bad (awful, horrible, unpleasant)
Blameworthy (blameworthy, at fault, guilty) vs. Innocent (faultless, guiltless, innocent)
Dangerous (unsafe, violent, aggressive) vs. Harmless (safe, harmless, peaceful)
Competent (capable, able, competent) vs. Helpless (incapable, unable, helpless)

Example of a Trial:

Mental Illness	Physical Illness
OR	OR
Blameworthy	Innocent

Guilty

Participant is asked to categorize the word (Guilty) to either the left hand side or the right hand side of the screen using the I or E keys as quickly as possible.

Example of a Trial:

Mental Illness	Physical Illness
OR	OR
Blameworthy	Innocent

Diabetes

Again, the participant is asked to categorize the word (Diabetes) to either the left hand side or the right hand side of the screen using the I or E keys as quickly as possible. This trial will continue until all of the words for mental illness, physical illness, blameworthy and innocent have been categorized. Then blameworthy and innocent will switch sides.

Appendix C

Clinical Decision Making Vignette

Clinical Decision Making Vignette

A 35-year-old new patient presents with a two-month history of lower gastrointestinal distress. The distress includes nausea and bouts of constipation. The patient reports the gastrointestinal distress occurs on a nearly daily basis. The patient stated they have had a lack of energy and motivation as well as difficulty falling and staying asleep. The patient reported trying numerous over the counter medications to help with the GI problems but has not found anything that has helped and stated they often feel hopeless. The patient reported a decrease in appetite and increased feelings of fatigue. The patient stated they no longer enjoy activities they previously enjoyed and can't continue living life this way.

1. What would you assess for in this patient?

2. With the current information what diagnosis would you give this patient?

3. What recommendations/referrals/medications would you give this patient if all resources were available to them?

Appendix D

Likelihood to Assess SI

Likelihood to Assess SI

Indicate how likely you would be to assess suicidal thoughts or risks with a patient who reported the following symptoms or experiences.

1=Not at all likely
2=Not likely
3=Not sure
4=Likely
5=Very likely

1. Lack of improvement or gradual worsening despite treatment of illness.

2. Onset of a significant physical illness (i.e. multiple sclerosis, cancer, HIV).

3. Abuse of alcohol, illegal or prescription drugs.

4. Lack of social support.

5. Chronic pain

6. Hopelessness

7. Acting impulsively.

8. Withdrawal from family, friends or society.

9. Agitation

10. Frequent thoughts of death and dying.

11. Headaches

12. Diarrhea

13. Heartburn

14. Increase in social activity.

15. Increase in motivation and goal directed behavior.

16. Flu-like symptoms.

17. Significant life changes (new job, new house, new relationship)

18. Constipation

19. Nausea

20. Joint pain

Appendix E

Consent Form

THE UNIVERSITY OF NORTH DAKOTA
CONSENT TO PARTICIPATE IN RESEARCH

TITLE:	Rural Primary Care Providers Reactions to Patient Illness
PROJECT DIRECTOR:	Megan Obert, M.S.
PHONE #	406-589-4722
DEPARTMENT:	Counseling Psychology

STATEMENT OF RESEARCH
A person who is to participate in the research must give his or her informed consent to such participation. This consent must be based on an understanding of the nature and risks of the research. This document provides information that is important for this understanding. Research projects include only subjects who choose to take part. Please take your time in making your decision as to whether to participate. If you have questions at any time, please contact the researcher at megan.obert@NDUS.edu

WHAT IS THE PURPOSE OF THIS STUDY?
You are invited to be in a research study about rural primary care providers and medical students' reactions to patient's illness because you are a primary care provider or a student working in a rural area. The purpose of this research study is to better understand primary care provider's reactions to different presenting illnesses in patients and how or if this affects their recommendations for treatment. Rural primary care providers see patients with a large variety of presenting concerns and are often the only practicing provider in a large area. The researcher hypothesizes that treatment recommendations will differ between rural and urban primary care providers due to less access to options in rural areas.

HOW MANY PEOPLE WILL PARTICIPATE?
Approximately sixty-eight people will take part in this study by researchers at the University of North Dakota. Participants will be recruited from rural areas across the United States.

HOW LONG WILL THIS STUDY BE?
Your participation in the study will last approximately 20 minutes. You will only be asked to participate once and will not be contacted again by the researchers for further participation. The one exception to this is if you sign up to be a part of the gift card drawing and win the drawing.

WHAT WILL HAPPEN DURING THIS STUDY?
You will be asked to complete six questionnaires. The first questionnaire is a short demographics sheet that will ask your sex, age range, race, type of licensure or program, population of the area you work in, what state you currently work in, how long you have been in practice, how many years you have been practicing in a rural area, region or origin, type of setting you work in and

amount of time spent on average with each patient. No other identifying information will be obtained. Three of the questionnaires will assess for your opinions and beliefs about different types of illness. A vignette describing a patient will be presented and you will be asked to identify what you would assess for if this was your patient, potential diagnosis, and recommendations for treatment. A final questionnaire will be presented that will ask you to identify symptoms or experiences that would be associated with an illness. In any of the questionnaires you are free to skip any question/s that you prefer not to answer.

WHAT ARE THE RISKS OF THE STUDY?
The risks of participating in this study are minimal. There may be frustration which is experienced often when completing surveys and the nature of some of the questions may upset you. However, risks such as these are not viewed as being in excess of minimal risk. If you do become upset by questions you may stop at any time or choose not to answer any of the questions. If you would like to talk to someone about your experience and feelings about this study you are encouraged to contact the researcher at 406-589-4722 or at megan.obert@NDUS.edu.

WHAT ARE THE BENEFITS OF THIS STUDY?
You will not benefit personally from being in this study. However, we hope that, in the future, other people might benefit from this study because the results will provide information that will be valuable to better understand the experience of rural primary care providers and their patients.

WILL IT COST ME ANYTHING TO BE IN THIS STUDY?
You will not have any costs for being in this research study.

WILL I BE PAID FOR PARTICIPATING?
You will not be paid for being in this research study. However, if you choose to provide your email address, you will be enrolled in a drawing for a gift card from Amazon for $200.

WHO IS FUNDING THIS STUDY?
The University of North Dakota and the researcher are receiving no payments from other agencies, organizations, or companies to conduct this research study.

CONFIDENTIALITY
The records of this study will be kept private to the extent permitted by law. In any report about this study that might be published, you will not be identified. Your study record may be reviewed by Government agencies, the UND Research Development and Compliance office, and the University of North Dakota Institutional Review Board. Any information that is obtained in this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. If we write a report or article about this study, we will describe the study results in a summarized manner so that you cannot be identified.

IS THIS STUDY VOLUNTARY?
Your participation is voluntary. You may choose not to participate or you may discontinue your participation at any time without any penalty. Your decision whether or not to participate will not affect your current or future relations with the University of North Dakota

CONTACTS AND QUESTIONS?
The researcher conducting this study is Megan Obert, M.S. You may ask any questions you have now by contacting her at 406-589-4722 or at megan.obert@NDUS.edu. If you later have questions, concerns, or complaints about the research please contact Megan Obert at 406-589-4722/megan.obert@NDUS.edu or Dr. Cindy Juntunen at 701-777-0410/cindy.juntunen@und.edu.

If you have questions regarding your rights as a research subject, you may contact The University of North Dakota Institutional Review Board at **(701) 777-4279**.

- You may also call this number about any problems, complaints, or concerns you have about this research study.
- You may also call this number if you cannot reach research staff, or you wish to talk with someone who is independent of the research team.
- General information about being a research subject can be found by clicking "Information for Research Participants" on the web site: http://und.edu/research/resources/human-subjects/research-participants.cfm

Your consent to continue on with the study indicates that this research study has been explained to you, that you have no current questions about the research study, and that you agree to take part in this study. You should save a copy of this form for your records.

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